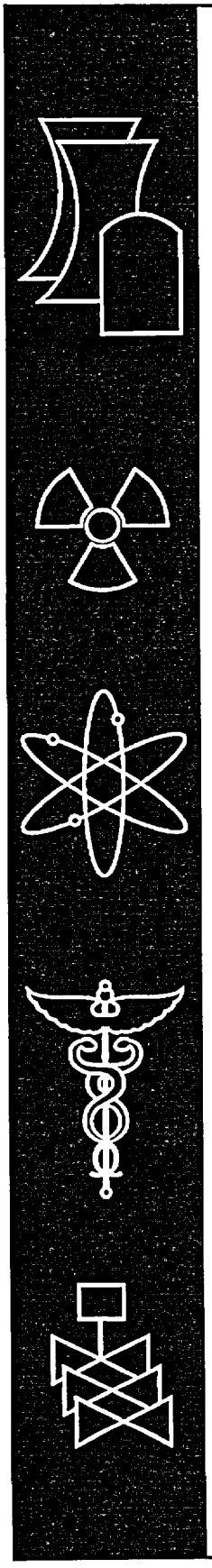
NUREG-0586, Supplement 1
Volume 2



Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities

Supplement 1

Regarding the Decommissioning of Nuclear Power Reactors

Appendices N, O and P

Final Report

U.S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
Washington, DC 20555-0001

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NUREG-0586, Supplement 1
Volume 2

Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities

Supplement 1

Regarding the Decommissioning of Nuclear Power Reactors

Appendices N, O and P

Final Report

Manuscript Completed: October 2002
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Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Abstract

This document is a supplement to the U.S. Nuclear Regulatory Commission (NRC) document *Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities* issued in 1988 (NUREG-0586, referred to here as the 1988 Generic Environmental Impact Statement [GEIS]). This Supplement was prepared because of technological advances in decommissioning operations, experience gained by licensees, and changes made to NRC regulations since the 1988 GEIS.

This Supplement updates the information provided in the 1988 GEIS. It is intended to be used to evaluate environmental impacts during the decommissioning of nuclear power reactors as residual radioactivity at the site is reduced to levels that allow for termination of the NRC license. This Supplement addresses only the decommissioning of nuclear power reactors licensed by the NRC. It updates the sections of the 1988 GEIS relating to pressurized water reactors, boiling water reactors, and multiple reactor stations. It goes beyond the 1988 GEIS to explicitly consider high-temperature gas-cooled reactors and fast breeder reactors. This document can be considered a stand-alone document for power reactor facilities such that readers should not need to refer back to the 1988 GEIS. The environmental impacts described in this Supplement supercede those described for power reactor facilities in the 1988 GEIS.

The scope of this Supplement is based on the decommissioning activities performed to remove radioactive materials from structures, systems, and components from the time that the licensee certifies that it has permanently ceased power operations until the license is terminated. The scope of the document was determined through public scoping meetings and meetings with other Federal agencies and the nuclear industry. An evaluation process was then developed to determine environmental impacts from nuclear power reactor facilities that are being decommissioned. The evaluation process involved determining the specific activities that occur during reactor decommissioning and obtaining data from site visits and from licensees at reactor facilities currently being decommissioned. The data obtained from the sites were analyzed and then evaluated against a list of variables that defined the parameters for facilities that are currently operating but which will one day be decommissioned. This evaluation resulted in a range of impacts for each environmental issue that may be used for comparison by licensees that are or will be decommissioning their facilities.

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Abbreviations/Acronyms

µGy	microGray(s)
µSv	microSieverts
ac	acre(s)
AEA	Atomic Energy Act of 1954
AEC	U.S. Atomic Energy Commission
ALI	annual limits on intake
ALARA	as low as reasonably achievable
ANPR	advance notice of proposed rulemaking
BLM	Bureau of Land Management
BMP	best management practice
Bq	Bequerel(s)
BWR	boiling water reactor
C	Celsius
CAA	Clean Air Act
CDE	committed dose equivalent
CEDE	committed effective dose equivalent
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
Ci	Curie
CWA	Clean Water Act
DAC	derived air concentration
dB	decibel
dBA	A-weighted sound levels
dBC	C-weighted sound levels
DBA	design basis accident
DDREF	dose or dose rate effectiveness factor
DE	dose equivalent
DNL	day-night average sound level
DOD	U.S. Department of Defense
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
EA	environmental assessment

EDE	effective dose equivalent
EIS	environmental impact statement
EJ	environmental justice
EPA	U.S. Environmental Protection Agency
ER	environmental report
ESA	Endangered Species Act of 1973
ES&H	environment, safety and health
F	Fahrenheit
FAA	Federal Aviation Administration
FBR	fast breeder reactor
FES	final environmental statement
FHA	Federal Housing Administration
FR	Federal Register
FSAR	Final Safety Analysis Report
ft	foot/feet
FWPCA	Federal Water Pollution Control Act (also known as the Clean Water Act of 1977)
FWS	U.S. Fish and Wildlife Service
gal.	gallon(s)
GEIS	Generic Environmental Impact Statement
gpd	gallons per day
gpm	gallons per minute
GTCC	Greater-than-Class-C (waste)
Gy	gray(s)
ha	hectare(s)
HDA	high decommissioning activity
HEPA	high-efficiency particulate air (filter)
HLW	high-level waste
h	hour
HTGR	high-temperature gas-cooled reactor
HUD	U.S. Department of Housing and Urban Development
HVAC	heating, ventilation, and air conditioning
IAEA	International Atomic Energy Agency
in.	inch(es)
I&C	instrumentation and control
ICRP	International Commission on Radiological Protection

ISFSI	independent spent fuel storage installation
kg	kilogram(s)
km	kilometer(s)
kV	kilovolt(s)
kWh	kilowatt hour(s)
L	liter(s)
LDA	low-decommissioning activity
LER	licensee event report
LET	linear energy transfer
LLW	low-level waste
LOS	level of service
LRA	license renewal application
LTP	license termination plan
LWR	light water reactor
m	meter(s)
m^3/d	cubic meters per day
m^3/s	cubic meters per second
MARSSIM	Multi-agency Radiation Survey and Site Investigation Manual, NUREG-1575
MBTA	Migratory Bird Treaty Act of 1918
mi	mile(s)
mGy	milliGray(s)
MPC	maximum permissible concentrations
mrad	millirad(s)
mrem	millirem(s)
MRS	monitored retrievable storage
mSv	milliSievert(s)
MTHM	metric tonnes of heavy metal
MT	metric ton(s) (or tonne[s])
MTU	metric ton(s)-uranium
MW	megawatt(s)
MWd/MTU	megawatt-days per metric ton of uranium
MW(e)	megawatt(s) electric
MW(t)	megawatt(s) thermal
MWh	megawatt hour(s)
NA	not applicable
NAS	National Academy of Sciences
NBS	National Bureau of Standards

NCRP	National Council on Radiation Protection and Measurements
NEI	Nuclear Energy Institute
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act of 1966
NIST	National Institute of Standards and Technology
NMFS	National Marine Fisheries Service
NO_x	nitrogen oxide(s)
NPDES	National Pollutant Discharge Elimination System
NRC	U.S. Nuclear Regulatory Commission
NRR	Nuclear Reactor Regulation
NWPA	Nuclear Waste Policy Act of 1982
ODCM	Offsite Dose Calculation Manual
OSHA	Occupational Safety and Health Administration
PAG	protective action guide
PCBs	polychlorobiphenyls
PEL	permissible exposure limit
POL	possession-only license
PPE	personal protective equipment
PSDAR	post-shutdown decommissioning activities report
PV	pressure vessel
PWR	pressurized water reactor
QA/QC	quality assurance/quality control
RCRA	Resource Conservation and Recovery Act of 1976
RCS	reactor coolant system
ROW	right-of-way/rights-of-way
RPV	reactor pressure vessel
SARA	Superfund Amendments and Reauthorization Act
SHPO	State Historic Preservation Officer
SI	Systeme Internationale (international system of units)
SO_2	sulfur dioxide
SO_x	sulfur oxide(s)
SSCs	structures, systems, and components
Sv	sievert(s)

TEDE	total effective dose equivalent
THPO	Tribal Historic Preservation Officer
UNSCEAR	United Nations Scientific Committee on The Effects of Atomic Radiation
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compound
VRM	Visual Resource Management (system)
wk	week(s)
YNPS	Yankee Nuclear Power Station
yr	year(s)

Appendix N

Summary of Scoping Comments

Appendix N

Summary of Scoping Comments

On Tuesday, March 14, 2000, the U.S. Nuclear Regulatory Commission (NRC) published a Notice of Intent in the Federal Register (65 FR 13797), to notify the public of the staff's intent to prepare a supplement to the *Generic Environmental Impact Statement on Decommissioning Nuclear Facilities* (1988 GEIS), NUREG-0586, to support decommissioning activities at commercial power production facilities and to conduct scoping. This Supplement to the 1988 GEIS was prepared in accordance with the National Environmental Policy Act (NEPA 1969), Council on Environmental Quality guidelines, and 10 CFR Part 51. As outlined by NEPA, the NRC initiated the scoping process with the issuance of the Federal Register Notice. The NRC invited all stakeholders to participate in the scoping process by providing oral comments at the scheduled public meetings and/or submitting written suggestions and comments no later than July 15, 2000. The scoping process included four public scoping meetings, which were held in Lisle, IL, on April 27, 2000; Boston, MA, on May 17, 2000; Atlanta, GA, on June 13, 2000; and San Francisco, CA, on June 21, 2000. Approximately 60 members of the public attended the meetings. All four meetings began with NRC staff members providing a brief overview of the decommissioning and NEPA process. After the NRC's prepared statements, the meetings were open to public comments. Twenty-three attendees provided either oral or written statements that were recorded and transcribed by a certified court recorder. The corrected meeting transcripts were provided in four letters dated June 30, 2000 (NRC 2000a, 2000b, 2000c, 2000d) and are available on the NRC website at http://www.nrc.gov/NRC/REACTOR/DECOMMISSIONING/GEIS/index.html. In addition to the comments provided during the public meetings, 11 comment letters were received by the NRC in response to the Notice of Intent.

While developing this Supplement to the 1988 GEIS, the staff and its contractor considered all of the relevant issues raised during the scoping process. The full scoping summary report is accessible through NRC's Public Electronic Reading Room (ADAMS) website at http://www.nrc.gov/NRC/ADAMS/index.html; the accession number is ML011100625. Each comment that was applicable to this Supplement is summarized in this section. This information was extracted from the Scoping Summary Report, dated April 17, 2001 (65 FR 13797) and is being provided in this report for the convenience of those interested in the scoping comments applicable to this environmental review. The comments that were determined to be general or outside the scope of Supplement are not included in this Appendix.

Appendix N

Meetings

Location	Date
Lisle, IL	April 27, 2000
Boston, MA	May 17, 2000
Atlanta, GA	June 13, 2000
San Francisco, CA	June 21, 2000

Written Comment Letters

Name/Organization	Date
Nuclear Information and Resource Service	July 11, 2000
Pamela Blockey-O'Brien	July 12, 2000
Nuclear Information and Resource Service (submitted a supplement to the letter they originally sent)	July 13, 2000
Lynnette Hendricks (Nuclear Energy Institute)	July 14, 2000
Massachusetts Citizens for Safe Energy	July 14, 2000
Campaign for a Prosperous Georgia	July 14, 2000
Paul Gunter (Nuclear Information and Resource Service)	July 14, 2000
George Crocker (Executive Director of the North American Water Office)	July 14, 2000
Citizens Awareness Network	July 15, 2000
Glenn Carroll (Georgians Against Nuclear Power)	July 15, 2000
George A. Zinke (Director, Nuclear Safety & Regulatory Affairs, Maine Yankee Atomic Power Co.)	July 17, 2000

Generic Environmental Impact Statement - Public Scoping Meeting Comments and Responses in Scope

1. Why is the GEIS being updated?

Three commenters (five comments) inquired about the reason that the NRC decided to update the GEIS. The question was raised whether the update was based on new information such as worker exposure, volume of high- or low-level radioactive waste, differences in disposal methodologies or decommissioning options, such as options in addition to entombment and rubblization. One commenter asked if the NRC had already found new information that would make the GEIS more conservative.

Response: *The basis for this Supplement is discussed in Chapter 1, Introduction. This comment is within the scope of this Supplement.*

One commenter (in two different comments) questioned the creation of the GEIS if decommissioning is not a major Federal action and also indicated that the GEIS and the decommissioning process are the "deregulation of decommissioning."

Response: *The update of the GEIS as related to the National Environmental Policy Act (NEPA) of 1969 is discussed in Chapter 1, Introduction. This comment is within the scope of this Supplement.*

Four commenters expressed concern that the revisions to the GEIS would be used in negative ways such as to serve private corporate nuclear industry interests, to allow a release of unnecessary radioactive material onsite and offsite, or to reduce liability for the nuclear industry and increase environmental damage and public health. One commenter indicated that the GEIS should regulate all forms of radioactive releases.

Response: *The appropriate uses of the Supplement are discussed in Chapter 1, Introduction. This comment is within the scope of this Supplement.*

Three commenters (four comments) agreed with the NRC's efforts to update the 1988 GEIS on decommissioning. One commenter indicated that the Supplement should be updated to incorporate and evaluate new decommissioning technologies developed over the past decade. A second commenter specified that rubblization should be considered.

Response: *One of the purposes of revising the GEIS is to incorporate and evaluate new decommissioning technologies and methods such as rubblization. This comment is within the scope of this Supplement. Technologies and methods are incorporated into the discussion and analysis in Chapter 4, Environmental Impacts.*

2. How will the GEIS be used?

One commenter inquired as to how the GEIS would be used.

Response: *The appropriate uses of this Supplement are discussed in Chapter 1, Introduction. This comment is within the scope of this Supplement.*

One commenter encouraged the NRC to make the Supplemental GEIS user-friendly with plain English and straightforward explanations for the public.

Response: *The NRC has specific criteria that must be met in publications that are related to the usage of plain English. This comment is within the scope of this Supplement and incorporated throughout the document.*

3. Will the GEIS satisfy the NEPA process?

One commenter asked about the actions and reviews involved in determining if the environmental impact concerns considered by the NRC sufficiently satisfy the NEPA requirements.

Response: *The relationship between the GEIS and the NEPA requirements are discussed in Chapter 1, Introduction. This comment is within the scope of this Supplement.*

One commenter asked if the NRC was planning to communicate the results of the scoping meetings and the final scope of the GEIS to the public.

Response: *The NEPA process provides for publishing and presentation of a draft report for comment before the final Supplement is issued. The comments noted in this summary report as being within the scope of the GEIS are addressed in this Supplement. Comments on the Supplement are solicited and considered before the report is finalized. This comment is within the scope of this Supplement.*

One commenter asserted that the NRC made false assumptions in the GEIS and indicated that these assumptions must be addressed and the true risk discovered before any further generic considerations are implemented.

Response: *The assumptions in the 1988 GEIS have been reconsidered in the development of this Supplement. This comment is within the scope of this Supplement and is discussed in Chapter 1, Introduction, and Chapter 4, Environmental Impacts.*

One commenter indicated that decommissioning was a Federal major action and required NEPA compliance and site-specific EISs.

Response: *Chapter 1, the introduction to this Supplement, describes the NEPA requirements for site-specific EISs and the basis for the agency's determination that decommissioning is not a Federal major action. This comment is within the scope of this Supplement.*

One commenter stated that the 1988 GEIS is a robust analysis that has stood the test of time. They supported a Supplement at this time.

Response: *A discussion of the use of the previous GEIS is provided in Chapter 1, Introduction. This comment is within the scope of this Supplement.*

4. Reactors that will be included in the GEIS

One commenter thought the GEIS should be explicit regarding which reactors were covered. The commenter was specifically concerned about Peach Bottom and Fermi.

Response: *The applicability of this Supplement to specific reactor facilities is discussed in Chapter 1, Introduction. This comment is within the scope of this Supplement.*

One commenter indicated that it was prudent at this time to incorporate issues that were identified through actual experience and to include issues relevant to the limited number of commercial non-light-water reactors.

Response: *The use of data from previous reactor decommissioning experience is discussed throughout this Supplement. This comment is within the scope of this Supplement.*

5. Decommissioning Activities

A. General Decommissioning Activities

One commenter inquired how the GEIS would handle two different methodologies for the same activity (such as removing steam generators as a whole or in pieces).

Response: This Supplement considers different methods for an activity to determine an acceptable envelope for that activity. If an activity results in impacts that are outside the envelope, then a site-specific assessment may be required. The process for developing this Supplement is described in Chapter 1, Introduction, further discussed in Chapter 4, Environmental Impacts, and described in more detail in Appendix E. This comment is within the scope of this Supplement.

One commenter indicated that the GEIS should provide more detail about specific decommissioning activities and technologies in order to accurately assess the associated environmental impacts. Another commenter indicated that they did not agree with the statement that decommissioning activities are not significantly different from operating the plant.

Response: *This Supplement considers specific decommissioning activities. The process for developing this Supplement is described in Chapter 1, Introduction, further discussed in Chapter 4, Environmental Impacts, and described in more detail in Appendix E. This comment is within the scope of this Supplement.*

B. Decommissioning Options

One commenter encouraged the NRC to adequately address alternatives. A second commenter inquired whether a preferred alternative would be specified in the GEIS.

Response: *Chapter 5 of this Supplement discusses alternatives to the proposed action, as required by the NEPA process. This comment is within the scope of this Supplement.*

1. DECON

No comments within scope.

2. SAFSTOR

One commenter encouraged the use of the SAFSTOR option because of the advantages in terms of exposure to workers and the public. Another reason for the commenter's support of SAFSTOR as an option was their opposition to shallow land burial of radioactive waste.

Response: *In Chapter 3, Description of Reactors, this Supplement addresses the options for decommissioning activities, including SAFSTOR and variations to SAFSTOR (such as the duration of the storage period or the use of incremental DECON, which includes incremental decontamination and dismantlement activities during the SAFSTOR period). This comment is within the scope of this Supplement.*

3. Entombment

One commenter asked what factors had changed since the 1988 GEIS that would suggest that ENTOMB was a possible option. A second commenter suggested that the lack of dumps for contaminated material made entombment a viable solution. A third commenter asked why entombment was considered not to be viable. And a fourth commenter inquired why the NRC would even be considering entombment if they already knew that the residual levels of radioactivity would be unacceptable.

Response: *This Supplement addresses varying options for decommissioning activities, including ENTOMB in Chapter 3, Description of Reactors. These comments are within the scope of this Supplement.*

One commenter encouraged the NRC to address entombment and to consider a name change to SAFSTOR II or Assured Isolation.

Response: *This Supplement addresses varying options for decommissioning activities, including ENTOMB in Chapter 3, Description of Reactors. This comment is within the scope of this Supplement.*

One commenter indicated that a Supplemental EIS must be required for the entombment option to assess the impact of what they perceive to be near-surface dumping of greater than Class C (GTCC) waste.

Response: *This Supplement addresses varying options for decommissioning activities including ENTOMB in Chapter 3, Description of Reactors. This comment is within the scope of this Supplement.*

4. Rubblization

Five commenters indicated that rubblization was an area that needed to be addressed in the revised GEIS. One commenter also added in a second comment that this included the environmental impact of residual radioactive material deeper than 6 in. below the surface, activated concrete, activated rebar, internal contamination in cracks, and sub-slab contamination. One of the commenters recommended that an additional intruder scenario be addressed.

Response: *This Supplement considers various decommissioning activities including rubblization in Chapter 4, Environmental Impacts. These comments are within the scope of this Supplement.*

Two commenters indicated that rubblization turns the reactor site into a low-level or perhaps high-level radioactive waste site and that deep monitoring wells, liners, etc., should be required and evaluated on a site-specific basis. One commenter also mentioned that salt-water corrosion should be evaluated because of the potential for some leakage from the facility if the waste is left onsite, such as occurs in rubblization.

Response: *This Supplement considers various decommissioning activities including rubblization in Chapter 4, Environmental Impacts. These comments are within the scope of this Supplement.*

5. Partial Site Release

Three commenters stated that partial site release should be addressed in the GEIS. One commenter inquired whether partial site release would be addressed in the Supplement. Another commenter stated that they opposed partial site release.

Response: *This Supplement considers partial site release and whether it can be included as a generic issue. Discussion of partial site release can be found in Chapter 1, Introduction. These comments are within the scope of this Supplement.*

C. Specific Activities to be included in the GEIS

1. Decommissioning Process

No comments within scope.

2. Post-Shutdown Decommissioning Activities Report (PSDAR)

One commenter was concerned that the only time a site-specific analysis would be conducted for a decommissioning plant would be if the facility failed the PSDAR.

Response: *This Supplement discusses the circumstances that will result in a site-specific analysis in Chapter 2, Introduction. This comment is within the scope of the GEIS.*

3. Public Meetings

No comments within scope.

4. Citizen Advisory Panels

No comments within scope.

5. Opportunity for Public Hearings

No comments within scope.

6. Inspections

No comments within scope.

7. Removal of Resident Inspectors

No comments within scope.

8. Intact Vessel Removal

Two commenters indicated that intact removal of the reactor vessel should be considered in the Supplement. One of the commenters actively advocated this alternative because of reduced worker dose, costs, and excellent isolation of the waste packages.

Response: *This Supplement considers specific decommissioning activities including intact removal of the reactor vessel. Decommissioning activities are discussed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

9. Spent Fuel

One commenter indicated that the delay in the schedule for removal of spent fuel should be reflected in the GEIS as far as decommissioning schedule, costs, and doses.

Response: *This Supplement addresses the impacts resulting from the variation in the timing of activities such as the removal of the spent fuel from the pool. This issue is addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

10. Waste Disposal

No comments within scope.

11. Waste Transport

One commenter asked what kind of transportation activities will be covered in the Supplement.

Response: *This Supplement considers impacts associated with the transportation of waste from the facility and transportation of equipment into the facility. The issue of transportation is addressed in Section 4.3.16, Transportation. This comment is within the scope of this Supplement.*

12. Offsite Cleanup

No comments within scope.

13. Site Characterization and Final Site Surveys

No comments within scope.

14. License Termination Plan - Timing of Submittal

No comments within scope.

15. License Termination Plan - Contents

No comments within scope.

16. License Termination Criteria

No comments within scope.

17. Life after License Termination

No comments within scope.

18. Reuse of Material

No comments within scope.

19. Transfer of Ownership

No comments within scope.

20. Financial Assurance

No comments within scope.

21. License Extensions

No comments within scope.

22. Safety of Decommissioning

No comments within scope.

6. Impacts that should be included or considered in the Supplement

A. Ecological Impacts

Three commenters (in four different comments) indicated that decommissioning has environmental impacts and that the GEIS should include an analysis of the environment and not just an analysis of impacts on humans.

Response: *The environmental impacts of decommissioning are addressed in this Supplement. Ecological issues are addressed in Chapter 4, Environmental Impacts. These comments are within the scope of this Supplement.*

One commenter recommended that the GEIS assess the degree to which the environmental parameters of the site may have changed during the operation of the facility.

Response: *This Supplement may include a consideration of the degree to which environmental parameters of the site may have changed during operation. Ecological issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

One commenter recommended that the GEIS take into account the relevant environmental characteristics of the site and the impacts from the use of the decommissioning techniques.

Response: *Relevant characteristics of the commercial nuclear power facility sites are being considered in the development of this Supplement. The impacts from the use of decommissioning techniques are also considered. Site characteristics and decommissioning techniques are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

One commenter recommended that land use, water use, air quality, and animal and human life be included in the GEIS as environmental impacts.

Response: *Ecological impacts such as land use, water use, air quality, and the impact on animals and humans are considered in this Supplement. Ecological issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

Two commenters recommended a mesh screen to prevent birds from landing and nesting on the site. Another recommended sterilizing the wildlife and containing them to allow them to die naturally in order to keep them from passing on genetic material.

Response: *The impacts of the decommissioning process on the terrestrial environment are considered in this Supplement. Mitigative actions will be considered if necessary. Ecological issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

B. Groundwater

Three commenters expressed concern about contamination in ground or surface water. Commenters indicated that studies should be conducted related to leaking pipes or plumes of contamination in the groundwater. One commenter specified that protocols should be in place that would be adhered to, particularly for underwater drilling. A third commenter thought that appropriate methodologies should be included to determine groundwater contamination before decommissioning occurs.

Response: *The impact of potentially contaminated groundwater is considered in this Supplement. Water quality issues are addressed in Chapter 4, Environmental Impacts. These comments are within the scope of this Supplement.*

One commenter cautioned that impacts to groundwater specifically from rubblization should not be underestimated.

Response: *The radiological impacts of rubblization for the period beyond the license termination must meet the requirements in 10 CFR Part 20, Subpart E, before the license will be terminated. Impacts to groundwater during the decommissioning period and nonradiological impacts following the termination of the license are generically addressed in this Supplement. Water quality issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

Two commenters recommended that wells be monitored within five miles of the facility and that specific actions be taken if contamination is found.

Response: *Monitoring of effluents during decommissioning are addressed in this Supplement. Water quality issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

One commenter indicated that all plumes must be traced, blocked, pumped, and filtered. Another commenter recommended pumping groundwater through resin beds, sand filters, and charcoal filters.

Response: *An evaluation of the impact of potentially contaminated water is considered in this Supplement. Mitigative measures are discussed, as appropriate. Water quality issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of the GEIS.*

C. Surface Water

Two commenters indicated that sediment up to a mile downstream from the discharge "valves" should be removed and treated as hazardous waste.

Response: *The staff is uncertain as to the meaning of "discharge valve" but is responding to this question assuming the commenters meant the discharge structure. An evaluation of the impact of potentially contaminated sediment and its removal during the decommissioning process is considered within this Supplement. Mitigative measures are discussed as appropriate. Water quality issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

One commenter recommended routing site runoff to covered detention ponds equipped with filters, etc.

Response: *An evaluation of the impacts to surface water is considered in this Supplement. Mitigative measures are discussed as appropriate. Water quality issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

D. Radiological Concerns

One commenter requested that NRC include a definition of background radiation in the GEIS. It should be clear whether the background was measured before or after 1945.

Response: *This Supplement uses the NRC's definition of background radiation as given in 10 CFR 20.1003 as the basis for any discussion of radiological impacts. The background for a particular site would correspond to the background radiation levels determined at the time that the Final Environmental Impact Statement for the facility was issued. Radiological issues are*

addressed in Chapter 4, Environmental Impacts. This comment is within the scope of the GEIS.

E. Occupational Dose Impacts

One commenter indicated that the dose estimates for decommissioning activities should be revised and that an envelope should be used to account for attempts to use certain techniques that may not be the best way to solve the problem.

Response: *This Supplement addresses the occupational dose estimates for decommissioning. Radiological issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

One commenter recommended that a good look be taken at the radiation exposure projections and that the projected exposure should be a good challenge for the industry.

Response: *This Supplement addresses the occupational dose estimates for decommissioning. Radiological issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of the GEIS.*

One commenter recommended that a comparison be made of the dose estimates if the facility is decommissioned initially or if decommissioning does not start for 2 years.

Response: *The timing of activities and its impact on the anticipated radiological dose for a decommissioning facility are considered in this Supplement. Radiological issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

One commenter encouraged caution in comparing risks among processes. The commenter recommended that all the aspects of different processes be considered and that the comparisons be compatible.

Response: *The comment is noted. The impacts of decommissioning activities are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

One commenter thought the scientific studies that have been performed since 1988 that show that radiation is more harmful to human health should also be included.

Response: *This Supplement will include a determination of the impacts on human health from the potential radiological dose. The discussion will be based on current scientific guidelines. Radiological issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

One commenter indicated that the total dose should be a very high priority.

Response: *This Supplement includes an analysis of the dose impacts of decommissioning. Radiological issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

One commenter suggested that exposure levels for workers are monitored every day and tallied every week or so and tracked against the limits given in the GEIS. A second commenter indicated that worker doses during decommissioning have been repeatedly underestimated because decommissioning is an experiment and there is a lack of experience and enforcement by the NRC. A third commenter specifically identified Connecticut Yankee as underestimating worker dose assessments and predictions.

Response: *This Supplement includes an analysis of impacts of radiation dose to workers due to decommissioning. Radiological issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

One commenter recommended that the GEIS include estimates for worker inhalation of materials of high specific activity that have been vaporized and particulated by a particular decommissioning operation.

Response: *This Supplement includes an analysis of the impact of radiation dose to workers during decommissioning. Radiological issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

F. Public Dose Impacts

One commenter thought the NRC did not deal with incidental contamination that affected a community, but focused instead on contamination from processes. The implication was that an analysis of incident contamination and its effect on the community should be included in the GEIS. Three other commenters specified the inadvertent release of hot particles and the routine decommissioning releases as jeopardizing health and safety of the public. One other commenter (in two comments) thought the health and safety problems needed to be taken more seriously.

Response: *The incidental contamination and inadvertent release of hot particles are unplanned releases and are handled on a site-specific basis and are not within the scope of this Supplement. An analysis of the routine decommissioning releases on the health and safety of the public are within the scope of this Supplement and are considered. Radiological issues are addressed in Chapter 4, Environmental Impacts.*

One commenter thought the dose to the public from shipment of material to other locations should be included in the consideration of dose from decommissioning a facility.

Response: *The dose to the public during transportation of radioactive material to disposal facilities are considered in this Supplement. Radiological issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

One commenter indicated that the priority of the whole process was not the decommissioning of the sites, but rather the protection of public health and the environment.

Response: *The NRC's mission includes the protection of public health and safety, the common defense and security, and the protection of the environment. The NRC's mission influences the entire decommissioning process. Public safety and protection of the environment are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

One commenter expressed concern over the issue of hot particles and their impact on the community.

Response: *The inadvertent or accidental release of hot particles is handled on a site-specific basis. Analysis of contamination that is removed from the site into the public realm is considered to be an accident and would be treated as such in this Supplement. Radiological issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

One commenter stated that NRC should not recalibrate and redefine background radiation levels so that they include regular plant operations, accidents, and weapons testing.

Response: *This Supplement uses the NRC's definition of background radiation as given in 10 CFR 20.1003 as a basis for any discussion of radiological impacts. Radiological issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of the GEIS.*

G. Transportation Dose Impacts

One commenter indicated that transportation doses should be considered and any site-specific issues. One commenter indicated that the changes in the transportation dose since 1988 (in the programs and methodologies that are used) warrant a revision in this area in the GEIS.

Response: *The transportation dose to the public and workers from the transport of wastes are within the scope of this Supplement. Transportation issues are addressed in Chapter 4, Environmental Impacts.*

H. Nonradiological Impacts

One commenter encouraged the incorporation of nonradiological contaminants into the GEIS. Four commenters expressed concern over nonradiological impacts of decommissioning. Two of the commenters specifically mentioned nonradiological impacts such as polychlorobiphenyls, heavy metals, and concrete. Another commenter inquired where the information would be obtained that related to nonradiological issues. Another commenter asked if nonradiological issues would be addressed in the license termination plan. (It was uncertain if this commenter thought this would also apply to the GEIS).

Response: *Nonradiological chemical hazards are regulated by the provisions of the Resource Conservation and Recovery Act (RCRA 1976). Most states have received authority from the U.S. Environmental Protection Agency (EPA) to regulate and enforce RCRA. The EPA controls hazardous waste storage, treatment, and disposal in those states that do not have this authority. Mixed waste (hazardous waste that contains radioactive material) is subject to regulation by the NRC under the Atomic Energy Act, as amended (AEA 1954), and by EPA under RCRA, as amended. Nonradiological chemical hazards are addressed in this Supplement as they relate to the radiological decommissioning of the facility. Nonradiological issues are addressed in Chapter 4, Environmental Impacts. Mixed waste (radiological contamination that is mixed with chemical contamination) are within the scope of this Supplement.*

I. Public Health Impacts (Nonradiological)

Two commenters discussed the spread of contamination into the community. One of the commenters recommended that the GEIS address health problems in the community as a result of contamination in the community.

Response: *This Supplement considers health impacts to the community as a result of radiation dose, noise, and transportation accidents. Public health issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

J. Socioeconomic Impacts

Two commenters indicated that community impacts are not adequately addressed in the GEIS and need to be looked at more carefully.

Response: *This Supplement considers socioeconomic impacts. Socioeconomic issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

K. Cultural Resource Impacts

One commenter inquired if the facilities are required to adhere to the National Park Service's requirement for Historic American Engineering Records and the Historic Architectural Building requirements.

Response: *Cultural resources are considered in this Supplement and are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

L. Cost Impacts

Two commenters recommended that the NRC take a look at the decommissioning projects or sites in detail to see if cost estimates do or do not match the final results. One of the commenters specifically addressed the variation in cost with time.

Response: *The cost of decommissioning is included in this Supplement. The variation in the cost estimates based on different start and end times of decommissioning are also considered. Cost issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of the Supplement.*

Two commenters thought that the storage of spent fuel should be considered as part of the decommissioning costs. One commenter also recommended that the removal of nonradioactive structures should be considered as part of the decommissioning costs.

Response: *The dismantlement of nonradioactive structures is not considered as part of the radiological decommissioning of the site unless it is necessary to remove a structure in order to complete the radiological decommissioning of the facility. However, the removal of structures that were necessary for the production of power are included in this Supplement for the sake of completeness even if the structures are not part of the radiological decommissioning of the site. Structure dismantlement issues are within the scope of this Supplement and are addressed in Chapter 4, Environmental Impacts. The management and funding for the storage of spent fuel is required by 10 CFR 50.54 and is regulated separately from the decommissioning costs. This comment is not within the scope of this Supplement.*

One commenter recommended placing the facility in SAFSTOR as a means to allow more time to gather money for decommissioning and to look at the availability of low-level waste sites.

Response: *The regulations for the accrual of funds for decommissioning are given in 10 CFR 50.75 and are not within the scope of this Supplement. However, the cost benefits of various decommissioning options are considered, and are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

M. Environmental Justice

Three commenters suggested that an analysis of the impacts of decommissioning on environmental justice be considered in the Supplement.

Response: *An analysis of environmental justice is included in this Supplement in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

N. Impacts of Fuel Storage

No comments within scope.

O. Cumulative Impacts

One commenter recommended that the whole picture be looked at with regards to the overall purpose and the environmental effects of the combined decommissioning options.

Response: *Cumulative impacts are within the scope of this Supplement and are considered in Chapter 4, Environmental Impacts.*

One commenter recommended that the GEIS include a description and analysis of cumulative impacts for each waste stream in the community, including transportation routes, NRC and DOE facilities, and proposed sites for waste management, storage, and disposition.

Response: *Cumulative impacts related to the decommissioning of the site are considered in this Supplement. Impacts related to transportation of the waste and to irretrievable commitment of land for waste storage are also considered in this Supplement. Cumulative impact, transportation, and retrieval resource impacts are addressed in Chapter 4, Environmental Impacts. Cumulative impacts from waste management, storage, and disposition facilities are not within the scope of this Supplement.*

7. Site-Specific Information versus Generic Information

Two commenters asked how impacts or site conditions will be addressed - if they would be handled generically in the GEIS or on a site-specific basis.

Response: *Ecological and environmental issues have been considered to determine if they are generic issues that should be included in this Supplement. Those issues determined not to be generic and that require a site-specific assessment are identified in this Supplement, in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

Two commenters asked how site-specific conditions such as groundwater pathways would be

considered in the Supplement. If they would be considered generically or on a site-specific basis.

Response: *Ecological and environmental issues have been considered to determine if they are a generic issue that should be included in this Supplement. Those issues determined not to be generic and that require a site-specific assessment are identified in this Supplement, in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

Eight commenters (in 16 different comments) asked about the situations and rules for triggering a site-specific environmental impact assessment. Specific examples of items that might trigger a site-specific analysis include contamination in pools and under reactor sites, coastal and flood plain issues, seismology, background radiation, pollution, reactor types, geology, operating experiences, land use, economy, synergistic effects of other toxins or industries in the area, decommissioning techniques, uniqueness of the site soil contamination, and river sediments.

Response: *This Supplement discusses the issue of site-specific versus generic environmental impacts in Chapter 4, Environmental Impacts. These comments are within the scope of this Supplement.*

Six commenters (nine comments) indicated that, in general, a site-specific impact statement or a set of guidelines that the utilities need to consider during decommissioning might be more appropriate than a GEIS because of the site-specific nature of decommissioning. One of the commenters thought that the question of what does and does not legitimately constitute site-specific factors in need of an EIS are economically driven instead of safety driven.

Response: *This Supplement will discuss the issue of site-specific versus generic environmental impacts in Chapter 4, Environmental Impacts. These comments are within the scope of this Supplement.*

8. Incorporation of Information from Previously Developed EISs

One commenter recommended that the Supplement address whether and how to incorporate findings from the EISs for plant construction and operation, analyses that have accrued during plant operations, and reports on referenced facilities.

Response: *Chapter 1, Introduction, in this Supplement discusses the interface between this Supplement for decommissioning and the EISs for plant construction, operation, and license renewal. This comment is within the scope of this Supplement.*

9. Methodology

A. Methodology - Process

One commenter recommended that decommissioning be treated as an activity separate from operations.

Response: *Environmental impacts from decommissioning activities are specifically addressed (and separately from impacts of operation) in this Supplement. Environmental impacts are considered in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

B. Determination of Boundary Conditions

One commenter asked how the boundary conditions for the GEIS would be determined. The commenter then proceeded to recommend several methods for determining boundary conditions for waste volumes.

Response: *This Supplement has been developed by collecting a reasonable range of information from the sites that are undergoing decommissioning and using that information to set boundaries for environmental impacts. Environmental Impacts are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

C. Changing the Parameters from the Initial Study

One commenter recommended that the existing GEIS be used as a baseline and that it should be supplemented in those areas where additional information is available. This would allow those licensees currently undergoing decommissioning to remain enveloped and those that are using the GEIS to evaluate a future decommissioning would have more up-to-date information.

Response: *The 1988 GEIS is being supplemented based on additional information and decommissioning experience and history. The analysis in Chapter 4, Environmental Impacts, and the corresponding appendices contain the data used for evaluating the environmental impacts. This comment is within the scope of this Supplement.*

10. Mitigation

One commenter recommended that the NRC adequately address mitigation in the GEIS or a site-specific analysis.

Response: *Mitigation is within the scope of this Supplement and is addressed in Chapter 1, Introduction, and Chapter 4, Environmental Impacts.*

11. Grandfathering

Three commenters asked about the impact of the new Supplement on facilities that have shut down and are in compliance with the 1988 GEIS.

Response: *The use of this Supplement by facilities that have previously shut down is addressed in this Supplement in Chapter 1, Introduction, and Chapter 4, Environmental Impacts.*

12. Regulations

A. Relationship to Other Regulations

One commenter thought the GEIS should address the relationship with other NRC regulations, such as site-release criteria.

Response: *The relationship between this Supplement and other NRC regulations or EISs is discussed in Chapter 1, Introduction. This comment is within the scope of this Supplement.*

One commenter recommended that NRC treat all problems and areas of concern as "site-specific problems" rather than as generic industry problems.

Response: *This Supplement identifies issues that require a site-specific analysis. Site-specific issues are addressed in Chapter 4, Environmental Impacts. This comment was within the scope of this Supplement.*

13. Scoping Meetings - Schedule, Substance, etc.

No comments within scope.

14. Comments Related to Specific Nuclear Power Plants

Three commenters addressed the use of rubblization as an activity for decommissioning at Maine Yankee. One commenter agreed that the NRC needed to fulfill their responsibilities related to NEPA. A second commenter believed that a full environmental assessment should be made to determine if a site-specific EIS is necessary. A third commenter strongly opposed any delay in a specific plant initiative based on the Supplement to the GEIS.

Response: *Rubblization is addressed by this Supplement. Specific areas or activities requiring site-specific analyses are also addressed. Rubblization and site-specific issues are considered in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

N.1 References

10 CFR 20. Code of Federal Regulations, Title 10, *Energy*, Part 20, "Standards for protection against radiation."

10 CFR 50. Code of Federal Regulations, Title 10, *Energy*, Part 50, "Domestic licensing of production and utilization facilities."

10 CFR 51. Code of Federal Regulations, Title 10, *Energy*, Part 51, "Environmental protection regulations for domestic licensing and related regulatory functions."

65 FR 13797. "Notice of Intent to Prepare a Supplement to the Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities and to Hold Public Meetings for the Purpose of Scoping and to Solicit Public Input into the Process." Nuclear Regulatory Commission. *Federal Register.* March 14, 2000.

Atomic Energy Act of 1954, as amended, 42 USC 2011 et seq.

National Environmental Policy Act (NEPA) of 1969, as amended, 42 USC 4321 et seq.

Resource Conservation and Recovery Act (RCRA) of 1976, as amended by the Hazardous and Solid Waste Amendments Act of 1984, 42 USC 6901 et seq.

U.S. Nuclear Regulatory Commission (NRC). 1988. *Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities.* NUREG-0586, NRC, Washington, D.C.

U.S. Nuclear Regulatory Commission (NRC). 2000a. Letter from NRC to "People who Requested a Copy of Meeting Transcript for GEIS Public Scoping Meeting on April 27, 2000 in Lisle, Illinois." Dated June 30, 2000.

U.S. Nuclear Regulatory Commission (NRC). 2000b. Letter from NRC to "People who Requested a Copy of Meeting Transcript for GEIS Public Scoping Meeting on May 17, 2000 in Boston, Massachusetts." Dated June 30, 2000.

U.S. Nuclear Regulatory Commission (NRC). 2000c. Letter from NRC to "People who Requested a Copy of Meeting Transcript for GEIS Public Scoping Meeting on June 13, 2000 in

Atlanta, Georgia." Dated June 30, 2000.

U.S. Nuclear Regulatory Commission (NRC). 2000d. Letter from NRC to "People who Requested a Copy of Meeting Transcript for GEIS Public Scoping Meeting on June 21, 2000 in San Francisco, California." Dated June 30, 2000.

Appendix O

Comments on the Draft Supplement and Staff Responses

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Appendix O

Comments on the Draft Supplement and Staff Responses

Introduction

On November 9, 2001 a notice of availability was published by the U.S. Nuclear Regulatory Commission in the Federal Register (66 FR 56721) announcing the publication of the *Generic Environmental Impact Statement on Decommissioning Nuclear Facilities, Draft Report for Comment* (NUREG-0586, Supplement 1). The draft Supplement was published for comment by Federal, State, and local government agencies as well as interested members of the public. As part of the process to solicit public comments on the draft Supplement, the staff:

- placed a copy of the draft Supplement into the NRC's electronic Public Document Room,
- sent copies of the draft Supplement to certain Federal, State, and local agencies,
- provided a copy of the draft Supplement to any member of the public that requested one free of charge,
- sent copies of the draft Supplement to identified public interest groups and concerned citizens in the vicinity of all 22 power reactors undergoing decommissioning,
- published a notice of availability of the draft Supplement in the Federal Register on November 9, 2001 (66 FR 56721), and
- announced and held public meetings in San Francisco, California on December 4, 2001, Chicago, Illinois on December 6, 2001, in Boston, Massachusetts on December 10, 2001, and in Atlanta, Georgia on December 12, 2001 to describe the results of the environmental review and answer related questions.

During the comment period, the staff received a total of 52 comment letters in addition to the comments received during the transcribed public meetings.

The staff has reviewed the public meeting transcripts and the 52 comment letters that are part of the docket file for the application, all of which are available in the NRC's Electronic Public Document Room (ADAMS) located at http://www.nrc.gov/NRC/ADAMS/index.html. Appendix O contains the excerpted comments and the staff's responses. Related issues are grouped together. The staff chose not to edit comments, and instead reprinted the comments in this appendix without modification. Emphasis added by the authors of the comments, such as capitalization, was retained. Appendix P contains excerpts of the public meeting transcripts, the written statements provided at the public meetings, and comment letters.

Each comment identified by the staff from the transcripts and comment letters was assigned a specific alpha-numeric comment number. The comment number is typed in the margin of the transcript or letter at the beginning of the comment. Table O-1 contains a cross-reference of the comment numbers, the speaker or author of the comment, the page where the comment can be found in Appendix P, and the section of this Appendix where the comment is addressed.

The speakers at the meetings are listed in speaking order in Table O-1. The comments from the transcript are identified by the letters "SF," "CH," "BO," or "AT," followed by a number that identifies each comment in approximate chronological order in which the comments were made. The letters "SF" indicate that the comments were made at the meeting in San Francisco, California, the letters "CH" indicate that the comments were made at the meeting in Chicago, Illinois, the letters "BO" indicate that the comments were made at the meeting in Boston, Massachusetts, and the letters "AT" indicate the comments were made in Atlanta, Georgia. The written statements (from the public meetings) and written comment letters are identified by the letters "CL," for "comment letter."

The staff made a determination on each comment that it was one of the following:

(1) a comment that was actually a request for information, or a statement of opinion, which did not introduce new information.

(2) a comment that raised an environmental issue that was not addressed in the supplement, but is within the scope of the environmental review.

(3) a comment outside the scope of this environmental review (based on the determination of scope and purpose of this Supplement, see Section 1.3, Scope of the Supplement).

Comments without a supporting technical basis or without any new information are discussed in this Appendix, and not in other sections of this Supplement. Relevant references that address the issues within the regulatory authority of the NRC are provided where appropriate. Many of these references can be obtained from the NRC Electronic Public Document Room.

Within each section of this Appendix, similar comments are grouped together for ease of

reference, and are followed by the staff's response. Where the comment or question resulted in a change in the text of the draft Supplement, the corresponding response refers the reader to the appropriate section of the final Supplement where the change was made. Revisions to the text in this final Supplement report are designated by vertical lines beside the text.

Some numbers were initially assigned to portions of verbal or written statements that were later determined not to be comments or some comments were combined. These items were removed from the table. As a result, not all numbers in Table O-1 are sequential.

Table O.1. Comment Log

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
SF-A/1	Sokolsky, David	Meeting Transcript - San Francisco	12/4/2001	P-1	O 6.2
SF-A/2	Sokolsky, David	Meeting Transcript - San Francisco	12/4/2001	P-7	O.6.2
SF-B/1	Cabasso, Jackie	Meeting Transcript - San Francisco	12/4/2001	P-2	O 6.2
SF-B/2	Cabasso, Jackie	Meeting Transcript - San Francisco	12/4/2001	P-2	O.6.2
SF-B/4	Cabasso, Jackie	Meeting Transcript - San Francisco	12/4/2001	P-11	O 2.3 1
SF-B/5	Cabasso, Jackie	Meeting Transcript - San Francisco	12/4/2001	P-11	O 4.4
SF-C/1	Nesbitt, Dale	Meeting Transcript - San Francisco	12/4/2001	P-4	O 5.5
SF-C/2	Nesbitt, Dale	Meeting Transcript - San Francisco	12/4/2001	P-6	O 5.5
SF-C/3	Nesbitt, Dale	Meeting Transcript - San Francisco	12/4/2001	P-10	O 2.4.1
SF-C/4	Nesbitt, Dale	Meeting Transcript - San Francisco	12/4/2001	P-10	O 2.4.1
SF-C/5	Nesbitt, Dale	Meeting Transcript - San Francisco	12/4/2001	P-10	O 4.4
SF-C/6	Nesbitt, Dale	Meeting Transcript - San Francisco	12/4/2001	P-10	O.2.4.1
SF-C/7	Nesbitt, Dale	Meeting Transcript - San Francisco	12/4/2001	P-11	O.1.6
SF-D/1	Olson, Patricia	Meeting Transcript - San Francisco	12/4/2001	P-9	O 5.2
SF-D/2	Olson, Patricia	Meeting Transcript - San Francisco	12/4/2001	P-9	O 4.1
SF-D/3	Olson, Patricia	Meeting Transcript - San Francisco	12/4/2001	P-9	O 4.1
CH-A/1	Musiker, Debbie	Meeting Transcript - Chicago	12/6/2001	P-14	O.6.2
CH-A/2	Musiker, Debbie	Meeting Transcript - Chicago	12/6/2001	P-14	O.6 2
CH-A/3	Musiker, Debbie	Meeting Transcript - Chicago	12/6/2001	P-16	O 3 0
CH-A/4	Musiker, Debbie	Meeting Transcript - Chicago	12/6/2001	P-21	O.6.4
CH-A/5	Musiker, Debbie	Meeting Transcript - Chicago	12/6/2001	P-21	O.2.3.2
CH-A/6	Musiker, Debbie	Meeting Transcript - Chicago	12/6/2001	P-21	O 4.10
CH-A/7	Musiker, Debbie	Meeting Transcript - Chicago	12/6/2001	P-21	O.2.4 2
CH-A/8	Musiker, Debbie	Meeting Transcript - Chicago	12/6/2001	P-21	O.2.4.1
CH-A/9	Musiker, Debbie	Meeting Transcript - Chicago	12/6/2001	P-22	O 2.4.1
CH-A/10	Musiker, Debbie	Meeting Transcript - Chicago	12/6/2001	P-22	O 1.16
CH-A/11	Musiker, Debbie	Meeting Transcript - Chicago	12/6/2001	P-22	O 2.3 4
CH-A/12	Musiker, Debbie	Meeting Transcript - Chicago	12/6/2001	P-22	O 2.3.1
CH-A/13	Musiker, Debbie	Meeting Transcript - Chicago	12/6/2001	P-22	O 6.1
CH-A/14	Musiker, Debbie	Meeting Transcript - Chicago	12/6/2001	P-22	O 2.3 1
CH-A/15	Musiker, Debbie	Meeting Transcript - Chicago	12/6/2001	P-25	O 4.10
CH-A/16	Musiker, Debbie	Meeting Transcript - Chicago	12/6/2001	P-29	O 6.2
CH-B/1	Gaynor, Paul	Meeting Transcript - Chicago	12/6/2001	P-15	O.1.4

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CH-B/3	Gaynor, Paul	Meeting Transcript - Chicago	12/6/2001	P-23	O.5.1
CH-B/4	Gaynor, Paul	Meeting Transcript - Chicago	12/6/2001	P-23	O 5.1
CH-C/1	Klebe, Michael	Meeting Transcript - Chicago	12/6/2001	P-17	O 2.3 3
CH-C/2	Klebe, Michael	Meeting Transcript - Chicago	12/6/2001	P-18	O 2.3 3
CH-C/3	Klebe, Michael	Meeting Transcript - Chicago	12/6/2001	P-18	O.5.4
CH-C/4	Klebe, Michael	Meeting Transcript - Chicago	12/6/2001	P-18	O 2.3 3
CH-C/5	Klebe, Michael	Meeting Transcript - Chicago	12/6/2001	P-18	O.2 3 3
CH-C/6	Klebe, Michael	Meeting Transcript - Chicago	12/6/2001	P-19	O.1 6
CH-C/7	Klebe, Michael	Meeting Transcript - Chicago	12/6/2001	P-19	O.2.3.3
CH-C/8	Klebe, Michael	Meeting Transcript - Chicago	12/6/2001	P-19	O.2 3 3
CH-C/9	Klebe, Michael	Meeting Transcript - Chicago	12/6/2001	P-19	O.2.3 3
CH-C/10	Klebe, Michael	Meeting Transcript - Chicago	12/6/2001	P-19	O.2 2
CH-C/11	Klebe, Michael	Meeting Transcript - Chicago	12/6/2001	P-20	O.2.3 3
CH-C/12	Klebe, Michael	Meeting Transcript - Chicago	12/6/2001	P-20	O.2 2
CH-C/14	Klebe, Michael	Meeting Transcript - Chicago	12/6/2001	P-27	O.2.3 3
CH-C/15	Klebe, Michael	Meeting Transcript - Chicago	12/6/2001	P-28	O 2.3
CH-C/16	Klebe, Michael	Meeting Transcript - Chicago	12/6/2001	P-29	O 2.3
CH-D/1	Goodman, Lynne	Meeting Transcript - Chicago	12/6/2001	P-23	O.6 5
CH-D/2	Goodman, Lynne	Meeting Transcript - Chicago	12/6/2001	P-23	O.1 8
CH-D/5	Goodman, Lynne	Meeting Transcript - Chicago	12/6/2001	P-23	O 6.1
CH-D/6	Goodman, Lynne	Meeting Transcript - Chicago	12/6/2001	P-23	O.1 9
CH-D/7	Goodman, Lynne	Meeting Transcript - Chicago	12/6/2001	P-24	O.1.8
CH-D/8	Goodman, Lynne	Meeting Transcript - Chicago	12/6/2001	P-24	O.1.7
CH-D/9	Goodman, Lynne	Meeting Transcript - Chicago	12/6/2001	P-24	O 6.5
CH-D/10	Goodman, Lynne	Meeting Transcript - Chicago	12/6/2001	P-24	O 6 5
CH-D/11	Goodman, Lynne	Meeting Transcript - Chicago	12/6/2001	P-24	O.1.6
CH-D/12	Goodman, Lynne	Meeting Transcript - Chicago	12/6/2001	P-24	O 5.1
CH-D/13	Goodman, Lynne	Meeting Transcript - Chicago	12/6/2001	P-30	O.5.3
BO-A/1	Dierker, Carl	Meeting Transcript - Boston	12/10/2001	P-30	O.2.3.2
BO-A/2	Dierker, Carl	Meeting Transcript - Boston	12/10/2001	P-31	O 2.3.2
BO-A/3	Dierker, Carl	Meeting Transcript - Boston	12/10/2001	P-31	O.2.3.2
BO-A/4[a]	Dierker, Carl	Meeting Transcript - Boston	12/10/2001	P-31	O.5.7
BO-A/6	Dierker, Carl	Meeting Transcript - Boston	12/10/2001	P-32	O 5 5
BO-B/1	Williams, Carl	Meeting Transcript - Boston	12/10/2001	P-32	O 5.4
BO-B/2	Williams, Carl	Meeting Transcript - Boston	12/10/2001	P-33	O 5 4

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
AT-A/1	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-38	O.6.2
AT-A/2	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-44	O 5.2
AT-A/3	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-44	O.5.2
AT-A/5	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-44	O.5.2
AT-A/6	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-45	O.5.3
AT-A/7	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-45	O 5.2
AT-A/8	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-45	O 6.3
AT-A/9	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-45	O 2.2
AT-A/10	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-45	O 2.4.2
AT-A/11	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-46	O 2.4.2
AT-A/12	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-46	O 2.4.1
AT-A/13	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-46	O 5.3
AT-A/14	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-46	O 2.4.1
AT-A/15	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-46	O 4 4
AT-A/16	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-46	O.4 4
AT-A/17	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-47	O.5.9
AT-A/18	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-47	O.5 5
AT-A/19	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-47	O.5.10
AT-A/20	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-47	O.5.2
AT-A/21	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-47	O.1.16
AT-A/22	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-47	O.2.2
AT-A/23	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-47	O.5.6
AT-A/24	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-48	O 4 6
AT-A/25	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-48	O.4.4
AT-A/26	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-48	O.4.5
AT-A/27	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-48	O.1.6
AT-A/29	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-48	O.1.9
AT-A/30	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-49	O.1.10
AT-A/31	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-49	O.1.9
AT-A/32	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-49	O.5.9
AT-A/33	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-49	O.1.6
AT-A/34	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-49	O.1.16
AT-A/35	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-50	O.1.16
AT-A/36	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-50	O.1.2
AT-A/37	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-50	O.2.3.4
AT-A/38	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-50	O 4 1.1
AT-A/39	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-50	O 4 8

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
AT-A/40	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-51	O.1.10
AT-A/41	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-51	O.5.9
AT-A/42	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-51	O 2.3 2
AT-A/43	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-51	O 4.3
AT-A/44	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-51	O.6.5
AT-A/45	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-51	O.5 9
AT-B/1	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-38	O.1.6
AT-B/2	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-39	O 4.7
AT-B/3	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-39	O 4 7
AT-B/4	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-40	O 4.8
AT-B/5	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-55	O.5 8
AT-B/6	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-55	O 4 7
AT-B/7	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-55	O.5.2
AT-B/8	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-55	O.4.5
AT-B/9	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-55	O.6 5
AT-B/10	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-55	O.2.1
AT-B/11	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-56	O.2.4.1
AT-B/12	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-56	O.2 4.3
AT-B/13	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-56	O.5 2
AT-B/14	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-56	O.1.10
AT-B/15	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-57	O.4.7
AT-B/16	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-57	O 2.3 2
AT-B/17	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-57	O 2.3 3
AT-B/18	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-57	O.6.4
AT-B/19	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-73	O.5.2
AT-B/20	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-73	O.5 2
AT-B/21	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-73	O 2 2
AT-B/22	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-73	O 2.1
AT-C/1	Martin, Ed	Meeting Transcript - Atlanta	12/12/2001	P-41	O 5.9
AT-C/2	Martin, Ed	Meeting Transcript - Atlanta	12/12/2001	P-41	O.1.9
AT-C/3	Martin, Ed	Meeting Transcript - Atlanta	12/12/2001	P-42	O.2.3.4
AT-C/4	Martin, Ed	Meeting Transcript - Atlanta	12/12/2001	P-41	O.1 9
AT-C/5	Martin, Ed	Meeting Transcript - Atlanta	12/12/2001	P-41	O.4.7
AT-C/6	Martin, Ed	Meeting Transcript - Atlanta	12/12/2001	P-41	O.1.9
AT-D/1	Kushner, Adele	Meeting Transcript - Atlanta	12/12/2001	P-52	O.1.9
AT-D/2	Kushner, Adele	Meeting Transcript - Atlanta	12/12/2001	P-52	O.2.4 2
AT-D/3	Kushner, Adele	Meeting Transcript - Atlanta	12/12/2001	P-52	O.5 9
AT-D/4	Kushner, Adele	Meeting Transcript - Atlanta	12/12/2001	P-52	O 4 4
AT-D/5	Kushner, Adele	Meeting Transcript - Atlanta	12/12/2001	P-52	O.3 0

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
AT-D/6	Kushner, Adele	Meeting Transcript - Atlanta	12/12/2001	P-52	O.1.15
AT-D/7	Kushner, Adele	Meeting Transcript - Atlanta	12/12/2001	P-52	O.4 3
AT-D/8	Kushner, Adele	Meeting Transcript - Atlanta	12/12/2001	P-52	O.6 5
AT-D/9	Kushner, Adele	Meeting Transcript - Atlanta	12/12/2001	P-52	O 2 3.3
AT-D/10	Kushner, Adele	Meeting Transcript - Atlanta	12/12/2001	P-53	O 6 3
AT-D/11	Kushner, Adele	Meeting Transcript - Atlanta	12/12/2001	P-53	O 2.4.2
AT-E/1	Genoa, Paul	Meeting Transcript - Atlanta	12/12/2001	P-53	O 2.3.4
AT-E/2	Genoa, Paul	Meeting Transcript - Atlanta	12/12/2001	P-72	O 2.2
AT-F/1	Zeller, Lou	Meeting Transcript - Atlanta	12/12/2002	P-58	O.2.2
AT-F/2	Zeller, Lou	Meeting Transcript - Atlanta	12/12/2002	P-58	O 2.4.1
AT-F/3	Zeller, Lou	Meeting Transcript - Atlanta	12/12/2002	P-58	O 4.4
AT-F/4	Zeller, Lou	Meeting Transcript - Atlanta	12/12/2002	P-58	O.2 4.1
AT-F/5	Zeller, Lou	Meeting Transcript - Atlanta	12/12/2002	P-58	O.2.2
AT-F/6	Zeller, Lou	Meeting Transcript - Atlanta	12/12/2002	P-59	O 1.6
AT-F/7	Zeller, Lou	Meeting Transcript - Atlanta	12/12/2002	P-60	O.1.15
AT-G/1	Carroll, Glen	Meeting Transcript - Atlanta	12/12/2001	P-60	O.2.3.3
AT-G/2	Carroll, Glen	Meeting Transcript - Atlanta	12/12/2001	P-61	O.4.3
AT-G/3	Carroll, Glen	Meeting Transcript - Atlanta	12/12/2001	P-61	O.4.1
AT-G/4	Carroll, Glen	Meeting Transcript - Atlanta	12/12/2001	P-61	O.3 0
AT-G/5	Carroll, Glen	Meeting Transcript - Atlanta	12/12/2001	P-61	O.2 3.3
AT-G/7	Carroll, Glen	Meeting Transcript - Atlanta	12/12/2001	P-71	O.1.9
AT-H/1	Ferguson, Tom	Meeting Transcript - Atlanta	12/12/2001	P-62	O.5 2
CL-01/1	Scherer, A Edward	Letter	12/27/2001	P-75	O.6 5
CL-01/2	Scherer, A Edward	Letter	12/27/2001	P-75	O.5 6
CL-01/3	Scherer, A Edward	Letter	12/27/2001	P-75	O.6 1
CL-01/4	Scherer, A Edward	Letter	12/27/2001	P-75	O.1.2
CL-01/5	Scherer, A Edward	Letter	12/27/2001	P-75	O.6 1
CL-01/6	Scherer, A Edward	Letter	12/27/2001	P-76	O.1.11
CL-01/7	Scherer, A Edward	Letter	12/27/2001	P-76	O.1.13
CL-01/8	Scherer, A Edward	Letter	12/27/2001	P-76	O.4.1.1
CL-02/1	Epstein, Eric Joseph	Letter	12/28/2001	P-79	O.1.9
CL-02/2	Epstein, Eric Joseph	Letter	12/28/2001	P-79	O.4 10
CL-02/3	Epstein, Eric Joseph	Letter	12/28/2001	P-80	O.1.9
CL-02/4	Epstein, Eric Joseph	Letter	12/28/2001	P-80	O.6.5
CL-02/5	Epstein, Eric Joseph	Letter	12/28/2001	P-80	O.4 4
CL-02/6	Epstein, Eric Joseph	Letter	12/28/2001	P-80	O.4.3
CL-02/7	Epstein, Eric Joseph	Letter	12/28/2001	P-80	O.1.9
CL-02/8	Epstein, Eric Joseph	Letter	12/28/2001	P-80	O.6 5

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-02/9	Epstein, Eric Joseph	Letter	12/28/2001	P-80	O 4.9
CL-02/10	Epstein, Eric Joseph	Letter	12/28/2001	P-80	O 2.2
CL-02/11	Epstein, Eric Joseph	Letter	12/28/2001	P-80	O.2.2
CL-02/12	Epstein, Eric Joseph	Letter	12/28/2001	P-80	O.4.10
CL-02/13	Epstein, Eric Joseph	Letter	12/28/2001	P-80	O.4.4
CL-02/14	Epstein, Eric Joseph	Letter	12/28/2001	P-80	O.6.5
CL-02/15	Epstein, Eric Joseph	Letter	12/28/2001	P-80	O 2.2
CL-02/16	Epstein, Eric Joseph	Letter	12/28/2001	P-80	O.6 5
CL-02/17	Epstein, Eric Joseph	Letter	12/28/2001	P-81	O.1.9
CL-02/18	Epstein, Eric Joseph	Letter	12/28/2001	P-84	O 2.1
CL-02/19	Epstein, Eric Joseph	Letter	12/28/2001	P-84	O.1.9
CL-02/20	Epstein, Eric Joseph	Letter	12/28/2001	P-86	O.1.9
CL-02/21	Epstein, Eric Joseph	Letter	12/28/2001	P-86	O 4 4
CL-02/22	Epstein, Eric Joseph	Letter	12/28/2001	P-87	O.1.9
CL-02/23	Epstein, Eric Joseph	Letter	12/28/2001	P-87	O 4.4
CL-02/24	Epstein, Eric Joseph	Letter	12/28/2001	P-87	O 4.4
CL-02/25	Epstein, Eric Joseph	Letter	12/28/2001	P-88	O 4.4
CL-02/26	Epstein, Eric Joseph	Letter	12/28/2001	P-88	O 4.4
CL-02/27	Epstein, Eric Joseph	Letter	12/28/2001	P-88	O.1.9
CL-02/28	Epstein, Eric Joseph	Letter	12/28/2001	P-89	O.1.9
CL-02/29	Epstein, Eric Joseph	Letter	12/28/2001	P-89	O 4.3
CL-02/30	Epstein, Eric Joseph	Letter	12/28/2001	P-90	O 4.3
CL-02/31	Epstein, Eric Joseph	Letter	12/28/2001	P-90	O.4.10
CL-02/32	Epstein, Eric Joseph	Letter	12/28/2001	P-92	O 4.9
CL-02/33	Epstein, Eric Joseph	Letter	12/28/2001	P-92	O.4.10
CL-02/34	Epstein, Eric Joseph	Letter	12/28/2001	P-92	O.1.10
CL-02/35	Epstein, Eric Joseph	Letter	12/28/2001	P-93	O 4.9
CL-02/36	Epstein, Eric Joseph	Letter	12/28/2001	P-94	O.1.9
CL-02/37	Epstein, Eric Joseph	Letter	12/28/2001	P-95	O 2 2
CL-02/38	Epstein, Eric Joseph	Letter	12/28/2001	P-95	O 2 2
CL-02/39	Epstein, Eric Joseph	Letter	12/28/2001	P-95	O 4.10
CL-02/40	Epstein, Eric Joseph	Letter	12/28/2001	P-95	O.6.1
CL-02/41	Epstein, Eric Joseph	Letter	12/28/2001	P-96	O 4.10
CL-02/42	Epstein, Eric Joseph	Letter	12/28/2001	P-96	O.4.10
CL-02/43	Epstein, Eric Joseph	Letter	12/28/2001	P-96	O.5 8
CL-02/44	Epstein, Eric Joseph	Letter	12/28/2001	P-97	O.5.5
CL-02/45	Epstein, Eric Joseph	Letter	12/28/2001	P-97	O.1.4
CL-02/46	Epstein, Eric Joseph	Letter	12/28/2001	P-98	O.1.13
CL-02/47	Epstein, Eric Joseph	Letter	12/28/2001	P-98	O 1.1

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-02/48	Epstein, Eric Joseph	Letter	12/28/2001	P-98	O.1.2
CL-02/49	Epstein, Eric Joseph	Letter	12/28/2001	P-99	O.1.2
CL-02/50	Epstein, Eric Joseph	Letter	12/28/2001	P-99	O.1.3
CL-02/51	Epstein, Eric Joseph	Letter	12/28/2001	P-100	O.1.4
CL-02/52	Epstein, Eric Joseph	Letter	12/28/2001	P-101	O.1.16
CL-02/53	Epstein, Eric Joseph	Letter	12/28/2001	P-101	O.1.4
CL-02/54	Epstein, Eric Joseph	Letter	12/28/2001	P-101	O.1.8
CL-02/55	Epstein, Eric Joseph	Letter	12/28/2001	P-101	O.1.10
CL-02/56	Epstein, Eric Joseph	Letter	12/28/2001	P-102	O.1.16
CL-02/57	Epstein, Eric Joseph	Letter	12/28/2001	P-102	O.1.9
CL-02/58	Epstein, Eric Joseph	Letter	12/28/2001	P-102	O.1.10
CL-02/59	Epstein, Eric Joseph	Letter	12/28/2001	P-103	O.1.10
CL-02/60	Epstein, Eric Joseph	Letter	12/28/2001	P-103	O.1.11
CL-02/61	Epstein, Eric Joseph	Letter	12/28/2001	P-103	O.1.12
CL-02/62	Epstein, Eric Joseph	Letter	12/28/2001	P-103	O.1.12
CL-02/63	Epstein, Eric Joseph	Letter	12/28/2001	P-103	O.1.16
CL-02/64	Epstein, Eric Joseph	Letter	12/28/2001	P-104	O 1.13
CL-02/65	Epstein, Eric Joseph	Letter	12/28/2001	P-104	O.1.15
CL-02/66	Epstein, Eric Joseph	Letter	12/28/2001	P-104	O.1.9
CL-02/67	Epstein, Eric Joseph	Letter	12/28/2001	P-105	O.5.7
CL-02/68	Epstein, Eric Joseph	Letter	12/28/2001	P-105	O.1.10
CL-02/69	Epstein, Eric Joseph	Letter	12/28/2001	P-105	O 1.10
CL-02/70	Epstein, Eric Joseph	Letter	12/28/2001	P-105	O.1.11
CL-02/71	Epstein, Eric Joseph	Letter	12/28/2001	P-106	O 1.15
CL-03/1	Scott, Collier Shannon	Letter	12/31/2001	P-108	O.4.1.1
CL-03/2	Scott, Collier Shannon	Letter	12/31/2001	P-108	O.4.1.1
CL-03/3	Scott, Collier Shannon	Letter	12/31/2001	P-108	O.4.1.1
CL-03/4	Scott, Collier Shannon	Letter	12/31/2001	P-108	O.4.1.1
CL-03/5	Scott, Collier Shannon	Letter	12/31/2001	P-109	O.1.10
CL-03/6	Scott, Collier Shannon	Letter	12/31/2001	P-109	O.4.1.1
CL-03/7	Scott, Collier Shannon	Letter	12/31/2001	P-109	O.1.10
CL-03/8	Scott, Collier Shannon	Letter	12/31/2001	P-109	O 4.1.1
CL-03/9	Scott, Collier Shannon	Letter	12/31/2001	P-110	O 4.1.1
CL-04/1	Williamson, Thomas	Letter	12/27/2001	P-111	O.6.5
CL-04/2	Williamson, Thomas	Letter	12/27/2001	P-111	O.5.4
CL-04/3	Williamson, Thomas	Letter	12/27/2001	P-111	O.1.3
CL-04/4	Williamson, Thomas	Letter	12/27/2001	P-111	O.1.4
CL-04/5	Williamson, Thomas	Letter	12/27/2001	P-111	O.1.4
CL-04/6	Williamson, Thomas	Letter	12/27/2001	P-112	O 1.5

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-04/7	Williamson, Thomas	Letter	12/27/2001	P-112	O.1.6
CL-04/8	Williamson, Thomas	Letter	12/27/2001	P-112	O.1.11
CL-04/9	Williamson, Thomas	Letter	12/27/2001	P-112	O.1.12
CL-04/10	Williamson, Thomas	Letter	12/27/2001	P-112	O.1.15
CL-04/11	Williamson, Thomas	Letter	12/27/2001	P-112	O 6.1
CL-04/12	Williamson, Thomas	Letter	12/27/2001	P-112	O.1.6
CL-04/13	Williamson, Thomas	Letter	12/27/2001	P-112	O.1.6
CL-04/14	Williamson, Thomas	Letter	12/27/2001	P-113	O.1.10
CL-04/15	Williamson, Thomas	Letter	12/27/2001	P-113	O.1.15
CL-04/16	Williamson, Thomas	Letter	12/27/2001	P-113	O.1.6
CL-04/17	Williamson, Thomas	Letter	12/27/2001	P-113	O 6.1
CL-04/18	Williamson, Thomas	Letter	12/27/2001	P-113	O.1.4
CL-04/19	Williamson, Thomas	Letter	12/27/2001	P-113	O 6.1
CL-05/1	Davis, James	Letter	12/28/2001	P-114	O 6.5
CL-05/2	Davis, James	Letter	12/28/2001	P-115	O.1.6
CL-05/3	Davis, James	Letter	12/28/2001	P-115	O 5.5
CL-05/4	Davis, James	Letter	12/28/2001	P-115	O 6.1
CL-05/5	Davis, James	Letter	12/28/2001	P-115	O 6.1
CL-05/6	Davis, James	Letter	12/28/2001	P-115	O 6.1
CL-05/7	Davis, James	Letter	12/28/2001	P-115	O 6.1
CL-05/8	Davis, James	Letter	12/28/2001	P-115	O.1 6
CL-05/9	Davis, James	Letter	12/28/2001	P-115	O 6.1
CL-05/10	Davis, James	Letter	12/28/2001	P-116	O 2.3 3
CL-05/11	Davis, James	Letter	12/28/2001	P-116	O.1.3
CL-05/12	Davis, James	Letter	12/28/2001	P-116	O 6.1
CL-05/13	Davis, James	Letter	12/28/2001	P-116	O.1.15
CL-05/14	Davis, James	Letter	12/28/2001	P-116	O.1.4
CL-05/15	Davis, James	Letter	12/28/2001	P-116	O.1.4
CL-05/16	Davis, James	Letter	12/28/2001	P-116	O 6.1
CL-05/17	Davis, James	Letter	12/28/2001	P-116	O.1.11
CL-05/18	Davis, James	Letter	12/28/2001	P-116	O 6.1
CL-05/19	Davis, James	Letter	12/28/2001	P-116	O.1.15
CL-06/1	Routh, Stephen	Letter	12/21/2001	P-117	O.1 6
CL-06/2	Routh, Stephen	Letter	12/21/2001	P-117	O 5 4
CL-06/3	Routh, Stephen	Letter	12/21/2001	P-117	O 1.7
CL-07[a]	Sokolsky, David	Letter	12/21/2001		
CL-08/1	Barczak, Sara	Letter	12/27/2001	P-119	O 5 2
CL-08/2	Barczak, Sara	Letter	12/27/2001	P-119	O 5 2
CL-08/3	Barczak, Sara	Letter	12/27/2001	P-119	O 2 4.1

(a) CL-07 Letter submitted by Mr. David Sokolsky–superceded by CL-15 dated 12/21/2001–duplicate comments.

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-08/4	Barczak, Sara	Letter	12/27/2001	P-119	O.5 9
CL-08/5	Barczak, Sara	Letter	12/27/2001	P-119	O.5.5
CL-08/6	Barczak, Sara	Letter	12/27/2001	P-119	O.5.6
CL-08/7	Barczak, Sara	Letter	12/27/2001	P-119	O.4.4
CL-08/8	Barczak, Sara	Letter	12/27/2001	P-119	O.4.5
CL-08/9	Barczak, Sara	Letter	12/27/2001	P-120	O.2.1
CL-08/10	Barczak, Sara	Letter	12/27/2001	P-120	O.4.10
CL-08/11	Barczak, Sara	Letter	12/27/2001	P-120	O.1.9
CL-08/12	Barczak, Sara	Letter	12/27/2001	P-120	O.4 10
CL-08/13	Barczak, Sara	Letter	12/27/2001	P-120	O.4.10
CL-08/14	Barczak, Sara	Letter	12/27/2001	P-120	O.1.9
CL-08/15	Barczak, Sara	Letter	12/27/2001	P-120	O.1.10
CL-08/16	Barczak, Sara	Letter	12/27/2001	P-120	O.4.10
CL-08/17	Barczak, Sara	Letter	12/27/2001	P-120	O.5.9
CL-08/18	Barczak, Sara	Letter	12/27/2001	P-120	O.1.16
CL-08/19	Barczak, Sara	Letter	12/27/2001	P-121	O.1.2
CL-08/20	Barczak, Sara	Letter	12/27/2001	P-121	O.2.3.4
CL-08/21	Barczak, Sara	Letter	12/27/2001	P-121	O.1.15
CL-08/22	Barczak, Sara	Letter	12/27/2001	P-121	O.2.3.4
CL-08/23	Barczak, Sara	Letter	12/27/2001	P-121	O.4.1.1
CL-08/24	Barczak, Sara	Letter	12/27/2001	P-121	O.4 8
CL-08/25	Barczak, Sara	Letter	12/27/2001	P-121	O.1.6
CL-08/26	Barczak, Sara	Letter	12/27/2001	P-121	O.1.16
CL-08/27	Barczak, Sara	Letter	12/27/2001	P-121	O.4 4
CL-08/28	Barczak, Sara	Letter	12/27/2001	P-121	O.4.9
CL-08/29	Barczak, Sara	Letter	12/27/2001	P-121	O.4.10
CL-08/30	Barczak, Sara	Letter	12/27/2001	P-121	O.2.2
CL-08/31	Barczak, Sara	Letter	12/27/2001	P-121	O.4 8
CL-08/32	Barczak, Sara	Letter	12/27/2001	P-122	O.6 3
CL-08/33	Barczak, Sara	Letter	12/27/2001	P-122	O.1.6
CL-08/35	Barczak, Sara	Letter	12/27/2001	P-122	O.5.9
CL-08/36[a]	Barczak, Sara	Letter	12/27/2001	P-122	
CL-09/1	O'Connor, Jr, WT	Letter	12/28/2001	P-123	O.6 5
CL-09/2	O'Connor, Jr, WT	Letter	12/28/2001	P-124	O.6.1
CL-09/3	O'Connor, Jr, WT	Letter	12/28/2001	P-124	O.6.1
CL-09/4	O'Connor, Jr, WT	Letter	12/28/2001	P-124	O.6.1

(a) CL-08/36 is a comment submitted by Ms. Sara Barczak in a written statement that was read into the transcript at the Atlanta public meeting The written statement was submitted to the NRC on December 27, 2001 along with comment letter CL-08. All the comments were duplicates of those in the transcript, except for comment CL-08/36, which has been added for completeness.

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-09/5	O'Connor, Jr, WT	Letter	12/28/2001	P-124	O.6.1
CL-09/6	O'Connor, Jr, WT	Letter	12/28/2001	P-124	O.6.1
CL-09/7	O'Connor, Jr, WT	Letter	12/28/2001	P-124	O.6.1
CL-09/8	O'Connor, Jr, WT	Letter	12/28/2001	P-124	O.6.1
CL-09/9	O'Connor, Jr, WT	Letter	12/28/2001	P-124	O.6.1
CL-09/10	O'Connor, Jr, WT	Letter	12/28/2001	P-124	O.6.1
CL-09/11	O'Connor, Jr, WT	Letter	12/28/2001	P-124	O.6.1
CL-09/12	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O 6.1
CL-09/13	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O 6.1
CL-09/14	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O 6.1
CL-09/15	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.6.1
CL-09/16	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.6.1
CL-09/17	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.1.2
CL-09/18	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O 6.1
CL-09/19	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.1.3
CL-09/20	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.1.3
CL-09/21	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.1.3
CL-09/22	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.1 3
CL-09/23	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.1.7
CL-09/24	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.1.7
CL-09/25	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.1.8
CL-09/26	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.1.8
CL-09/27	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.6.1
CL-09/28	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.6.1
CL-09/29	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.6.1
CL-09/30	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.6.1
CL-09/31	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.6.1
CL-09/32	O'Connor, Jr, WT	Letter	12/28/2001	P-126	O 6.1
CL-09/33	O'Connor, Jr, WT	Letter	12/28/2001	P-126	O.1.8
CL-09/34	O'Connor, Jr, WT	Letter	12/28/2001	P-126	O 6.1
CL-09/35	O'Connor, Jr, WT	Letter	12/28/2001	P-126	O 6.1
CL-09/36	O'Connor, Jr, WT	Letter	12/28/2001	P-126	O.6.1
CL-09/37	O'Connor, Jr, WT	Letter	12/28/2001	P-126	O.1.6
CL-09/38	O'Connor, Jr, WT	Letter	12/28/2001	P-126	O.1.6
CL-09/39	O'Connor, Jr, WT	Letter	12/28/2001	P-126	O.1.6
CL-09/40	O'Connor, Jr, WT	Letter	12/28/2001	P-126	O.1.6
CL-09/41	O'Connor, Jr, WT	Letter	12/28/2001	P-127	O.1.6
CL-09/42	O'Connor, Jr, WT	Letter	12/28/2001	P-127	O.1.6
CL-09/43	O'Connor, Jr, WT	Letter	12/28/2001	P-127	O 6.1
CL-09/44	O'Connor, Jr, WT	Letter	12/28/2001	P-127	O.1.6

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-09/45	O'Connor, Jr, WT	Letter	12/28/2001	P-127	O.1.6
CL-09/46	O'Connor, Jr, WT	Letter	12/28/2001	P-127	O.1.6
CL-09/47	O'Connor, Jr, WT	Letter	12/28/2001	P-127	O.1.6
CL-09/48	O'Connor, Jr, WT	Letter	12/28/2001	P-127	O.1.8
CL-09/49	O'Connor, Jr, WT	Letter	12/28/2001	P-127	O 6.1
CL-09/50	O'Connor, Jr, WT	Letter	12/28/2001	P-127	O 6.1
CL-09/51	O'Connor, Jr, WT	Letter	12/28/2001	P-127	O.1.7
CL-09/52	O'Connor, Jr, WT	Letter	12/28/2001	P-127	O.1.7
CL-09/53	O'Connor, Jr, WT	Letter	12/28/2001	P-127	O.1.7
CL-09/54	O'Connor, Jr, WT	Letter	12/28/2001	P-127	O.1.7
CL-09/55	O'Connor, Jr, WT	Letter	12/28/2001	P-127	O.1.7
CL-09/56	O'Connor, Jr, WT	Letter	12/28/2001	P-127	O.6.1
CL-09/57	O'Connor, Jr, WT	Letter	12/28/2001	P-128	O.6.1
CL-09/58	O'Connor, Jr, WT	Letter	12/28/2001	P-128	O.6.5
CL-10/1	Kushner, Adele	Letter	12/29/2001	P-129	O.2 3 2
CL-10/2	Kushner, Adele	Letter	12/29/2001	P-129	O.2.2
CL-10/3	Kushner, Adele	Letter	12/29/2001	P-129	O 3 0
CL-10/4	Kushner, Adele	Letter	12/29/2001	P-129	O.1.15
CL-10/5	Kushner, Adele	Letter	12/29/2001	P-129	O.1.7
CL-10/6	Kushner, Adele	Letter	12/29/2001	P-129	O.5.9
CL-10/7	Kushner, Adele	Letter	12/29/2001	P-129	O.2.3 2
CL-10/8	Kushner, Adele	Letter	12/29/2001	P-129	O.2.3 3
CL-10/9	Kushner, Adele	Letter	12/29/2001	P-129	O.2.3 2
CL-10/10	Kushner, Adele	Letter	12/29/2001	P-129	O.2.3 2
CL-10/11	Kushner, Adele	Letter	12/29/2001	P-129	O.1.6
CL-10/12	Kushner, Adele	Letter	12/29/2001	P-129	O.5.2
CL-11/1	Musiker, Debbie	Letter	12/31/2001	P-130	O.6.4
CL-11/2	Musiker, Debbie	Letter	12/31/2001	P-130	O.1.16
CL-11/3	Musiker, Debbie	Letter	12/31/2001	P-130	O.1.6
CL-11/4	Musiker, Debbie	Letter	12/31/2001	P-130	O.1.4
CL-11/5	Musiker, Debbie	Letter	12/31/2001	P-131	O.1.4
CL-11/6	Musiker, Debbie	Letter	12/31/2001	P-131	O.3.0
CL-11/7	Musiker, Debbie	Letter	12/31/2001	P-131	O.1.16
CL-11/8	Musiker, Debbie	Letter	12/31/2001	P-131	O.1.4
CL-11/9	Musiker, Debbie	Letter	12/31/2001	P-131	O.2.3.1
CL-11/10	Musiker, Debbie	Letter	12/31/2001	P-131	O.4.10
CL-11/11	Musiker, Debbie	Letter	12/31/2001	P-131	O.1.6
CL-11/12	Musiker, Debbie	Letter	12/31/2001	P-131	O 2.4.1
CL-11/13	Musiker, Debbie	Letter	12/31/2001	P-131	O.2.4.1
CL-11/14	Musiker, Debbie	Letter	12/31/2001	P-131	O 2.2

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-11/15	Musiker, Debbie	Letter	12/31/2001	P-131	O.2.2
CL-12/1	Martin, Ed	Letter	12/31/2001	P-133	O.5.2
CL-12/2	Martin, Ed	Letter	12/31/2001	P-133	O.5.2
CL-12/3	Martin, Ed	Letter	12/31/2001	P-133	O.5.2
CL-13/1	Shadis, Raymond	Letter	12/31/2001	P-134	O.2.4 3
CL-13/2	Shadis, Raymond	Letter	12/31/2001	P-134	O.1.6
CL-13/3	Shadis, Raymond	Letter	12/31/2001	P-134	O.1.7
CL-13/4	Shadis, Raymond	Letter	12/31/2001	P-134	O.1.7
CL-13/5	Shadis, Raymond	Letter	12/31/2001	P-135	O.1.10
CL-13/6	Shadis, Raymond	Letter	12/31/2001	P-135	O.1.10
CL-13/7	Shadis, Raymond	Letter	12/31/2001	P-135	O.1.9
CL-13/8	Shadis, Raymond	Letter	12/31/2001	P-135	O.1.10
CL-13/9	Shadis, Raymond	Letter	12/31/2001	P-135	O.1.10
CL-13/10	Shadis, Raymond	Letter	12/31/2001	P-135	O.1.10
CL-13/11	Shadis, Raymond	Letter	12/31/2001	P-135	O.1.10
CL-13/12	Shadis, Raymond	Letter	12/31/2001	P-135	O.1.10
CL-13/13	Shadis, Raymond	Letter	12/31/2001	P-135	O.1.10
CL-13/14	Shadis, Raymond	Letter	12/31/2001	P-135	O.1.6
CL-13/15	Shadis, Raymond	Letter	12/31/2001	P-135	O.1.9
CL-13/16	Shadis, Raymond	Letter	12/31/2001	P-136	O.1.14
CL-13/17	Shadis, Raymond	Letter	12/31/2001	P-136	O.1.15
CL-13/18	Shadis, Raymond	Letter	12/31/2001	P-136	O.4.4
CL-13/19	Shadis, Raymond	Letter	12/31/2001	P-136	O.4.3
CL-14/1	Oncavage, Mark P.	Letter	12/31/2001	P-137	O.1.16
CL-14/2	Oncavage, Mark P.	Letter	12/31/2001	P-137	O.1.16
CL-14/3	Oncavage, Mark P.	Letter	12/31/2001	P-138	O.1.16
CL-14/4	Oncavage, Mark P.	Letter	12/31/2001	P-138	O.2..3 4
CL-14/5	Oncavage, Mark P.	Letter	12/31/2001	P-138	O.1.9
CL-14/6	Oncavage, Mark P.	Letter	12/31/2001	P-138	O 2.4.1
CL-14/7	Oncavage, Mark P.	Letter	12/31/2001	P-138	O.5.2
CL-15/1	Sokolsky, David	Letter	1/2/2002	P-140	O.6.2
CL-15/2	Sokolsky, David	Letter	1/2/2002	P-140	O.6.1
CL-15/3	Sokolsky, David	Letter	1/2/2002	P-140	O.6.1
CL-15/4	Sokolsky, David	Letter	1/2/2002	P-140	O.6.1
CL-15/6	Sokolsky, David	Letter	1/2/2002	P-140	O.1.6
CL-16/1	Miller, Anne Norton	Letter	12/21/2001	P-141	O.6.5
CL-16/2	Miller, Anne Norton	Letter	12/21/2001	P-141	O.6.1
CL-16/3	Miller, Anne Norton	Letter	12/21/2001	P-141	O.5.5
CL-16/4	Miller, Anne Norton	Letter	12/21/2001	P-141	O.6.1

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-16/5	Miller, Anne Norton	Letter	12/21/2001	P-141	O.1.2
CL-16/6	Miller, Anne Norton	Letter	12/21/2001	P-142	O.6 1
CL-16/7	Miller, Anne Norton	Letter	12/21/2001	P-142	O.4.6
CL-16/8	Miller, Anne Norton	Letter	12/21/2001	P-142	O.6 1
CL-16/9	Miller, Anne Norton	Letter	12/21/2001	P-142	O.2.4.1
CL-16/10	Miller, Anne Norton	Letter	12/21/2001	P-142	O 2.3.3
CL-16/11	Miller, Anne Norton	Letter	12/21/2001	P-143	O.5.6
CL-16/12	Miller, Anne Norton	Letter	12/21/2001	P-143	O.5 4
CL-16/13	Miller, Anne Norton	Letter	12/21/2001	P-143	O.1 2
CL-16/14	Miller, Anne Norton	Letter	12/21/2001	P-143	O.1.7
CL-16/15	Miller, Anne Norton	Letter	12/21/2001	P-143	O.5.5
CL-16/16	Miller, Anne Norton	Letter	12/21/2001	P-143	O.6 1
CL-16/17	Miller, Anne Norton	Letter	12/21/2001	P-143	O.3.0
CL-16/18	Miller, Anne Norton	Letter	12/21/2001	P-143	O.1.6
CL-16/19	Miller, Anne Norton	Letter	12/21/2001	P-143	O.1.2
CL-16/20	Miller, Anne Norton	Letter	12/21/2001	P-143	O.1.6
CL-16/21	Miller, Anne Norton	Letter	12/21/2001	P-143	O.6 1
CL-16/22	Miller, Anne Norton	Letter	12/21/2001	P-143	O.6.1
CL-16/23	Miller, Anne Norton	Letter	12/21/2001	P-143	O.1.1
CL-16/24	Miller, Anne Norton	Letter	12/21/2001	P-143	O.1.1
CL-16/25	Miller, Anne Norton	Letter	12/21/2001	P-143	O.1.1
CL-16/26	Miller, Anne Norton	Letter	12/21/2001	P-144	O.1.1
CL-16/27	Miller, Anne Norton	Letter	12/21/2001	P-144	O.1.1
CL-16/28	Miller, Anne Norton	Letter	12/21/2001	P-144	O.1.2
CL-16/29	Miller, Anne Norton	Letter	12/21/2001	P-144	O.1.2
CL-16/30	Miller, Anne Norton	Letter	12/21/2001	P-144	O.1.2
CL-16/31	Miller, Anne Norton	Letter	12/21/2001	P-144	O.1.2
CL-16/32	Miller, Anne Norton	Letter	12/21/2001	P-144	O.1.2
CL-16/33	Miller, Anne Norton	Letter	12/21/2001	P-144	O.1.2
CL-16/34	Miller, Anne Norton	Letter	12/21/2001	P-144	O.1.2
CL-16/35	Miller, Anne Norton	Letter	12/21/2001	P-144	O.1.2
CL-16/36	Miller, Anne Norton	Letter	12/21/2001	P-144	O.1.2
CL-16/37	Miller, Anne Norton	Letter	12/21/2001	P-144	O.1.2
CL-16/38	Miller, Anne Norton	Letter	12/21/2001	P-145	O.1.2
CL-16/39	Miller, Anne Norton	Letter	12/21/2001	P-145	O.1.3
CL-16/40	Miller, Anne Norton	Letter	12/21/2001	P-145	O.1.3
CL-16/41	Miller, Anne Norton	Letter	12/21/2001	P-145	O.1.3
CL-16/42	Miller, Anne Norton	Letter	12/21/2001	P-145	O.1.3
CL-16/43	Miller, Anne Norton	Letter	12/21/2001	P-145	O.1.3

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-16/44	Miller, Anne Norton	Letter	12/21/2001	P-145	O.1.3
CL-16/45	Miller, Anne Norton	Letter	12/21/2001	P-145	O.1.4
CL-16/46	Miller, Anne Norton	Letter	12/21/2001	P-145	O.1.4
CL-16/47	Miller, Anne Norton	Letter	12/21/2001	P-145	O.1.4
CL-16/48	Miller, Anne Norton	Letter	12/21/2001	P-145	O.1.4
CL-16/49	Miller, Anne Norton	Letter	12/21/2001	P-145	O.1.4
CL-16/50	Miller, Anne Norton	Letter	12/21/2001	P-145	O.1.4
CL-16/51	Miller, Anne Norton	Letter	12/21/2001	P-146	O.1.4
CL-16/52	Miller, Anne Norton	Letter	12/21/2001	P-146	O.1.4
CL-16/53	Miller, Anne Norton	Letter	12/21/2001	P-146	O.1.4
CL-16/54	Miller, Anne Norton	Letter	12/21/2001	P-146	O.1.4
CL-16/55	Miller, Anne Norton	Letter	12/21/2001	P-146	O.1.4
CL-16/56	Miller, Anne Norton	Letter	12/21/2001	P-146	O.1.4
CL-16/57	Miller, Anne Norton	Letter	12/21/2001	P-146	O.1.4
CL-16/58	Miller, Anne Norton	Letter	12/21/2001	P-146	O.1.4
CL-16/59	Miller, Anne Norton	Letter	12/21/2001	P-146	O.1.4
CL-16/60	Miller, Anne Norton	Letter	12/21/2001	P-146	O.1.4
CL-16/61	Miller, Anne Norton	Letter	12/21/2001	P-146	O.1.5
CL-16/62	Miller, Anne Norton	Letter	12/21/2001	P-146	O.1.5
CL-16/63	Miller, Anne Norton	Letter	12/21/2001	P-146	O.1.6
CL-16/64	Miller, Anne Norton	Letter	12/21/2001	P-146	O.1.6
CL-16/65	Miller, Anne Norton	Letter	12/21/2001	P-146	O.1.6
CL-16/66	Miller, Anne Norton	Letter	12/21/2001	P-147	O.1.6
CL-16/67	Miller, Anne Norton	Letter	12/21/2001	P-147	O 2.3 4
CL-16/68	Miller, Anne Norton	Letter	12/21/2001	P-147	O 6.1
CL-16/69	Miller, Anne Norton	Letter	12/21/2001	P-147	O.1.12
CL-16/70	Miller, Anne Norton	Letter	12/21/2001	P-147	O.1.15
CL-16/71	Miller, Anne Norton	Letter	12/21/2001	P-147	O 6.1
CL-16/72	Miller, Anne Norton	Letter	12/21/2001	P-147	O.6.1
CL-16/73	Miller, Anne Norton	Letter	12/21/2001	P-147	O.6.1
CL-16/74	Miller, Anne Norton	Letter	12/21/2001	P-147	O.6.1
CL-17/1	Ortciger, Thomas W.	Letter	1/7/2002	P-148	O.2.3.3
CL-17/2	Ortciger, Thomas W.	Letter	1/7/2002	P-149	O.5.4
CL-17/3	Ortciger, Thomas W.	Letter	1/7/2002	P-149	O.4.8
CL-17/4	Ortciger, Thomas W.	Letter	1/7/2002	P-149	O.2.3.3
CL-17/5	Ortciger, Thomas W.	Letter	1/7/2002	P-149	O.2.2
CL-17/6	Ortciger, Thomas W.	Letter	1/7/2002	P-149	O.4.8
CL-17/7	Ortciger, Thomas W.	Letter	1/7/2002	P-149	O 2.3.3
CL-17/8	Ortciger, Thomas W.	Letter	1/7/2002	P-149	O 2.2

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-17/9	Ortciger, Thomas W.	Letter	1/7/2002	P-149	O 4.3
CL-17/10	Ortciger, Thomas W.	Letter	1/7/2002	P-149	O 6 5
CL-17/11	Ortciger, Thomas W.	Letter	1/7/2002	P-149	O 6 5
CL-17/12	Ortciger, Thomas W.	Letter	1/7/2002	P-149	O 2.2
CL-18/1	Delezenski, Jerry	Letter	11/20/2001	P-150	O.6.1
CL-18/2	Delezenski, Jerry	Letter	11/20/2001	P-150	O.1.9
CL-18/3	Delezenski, Jerry	Letter	11/20/2001	P-150	O 6 5
CL-19/1	Byrne, Stephen A.	Letter	12/20/2001	P-151	O.2.3 3
CL-19/2	Byrne, Stephen A.	Letter	12/20/2001	P-151	O.2.3.3
CL-20/1	Blockey-O'Bnen, Pamela	Letter	12/26/2001	P-152	O.6.5
CL-20/2	Blockey-O'Bnen, Pamela	Letter	12/26/2001	P-152	O 6.3
CL-20/3	Blockey-O'Bnen, Pamela	Letter	12/26/2001	P-152	O 6 5
CL-20/4	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-152	O.2.2
CL-20/5	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-152	O.1.16
CL-20/6	Blockey-O'Bnen, Pamela	Letter	12/26/2001	P-152	O.5 5
CL-20/7	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-153	O.1.6
CL-20/8	Blockey-O'Bnen, Pamela	Letter	12/26/2001	P-153	O.1.6
CL-20/9	Blockey-O'Bnen, Pamela	Letter	12/26/2001	P-153	O.1.4
CL-20/10	Blockey-O'Bnen, Pamela	Letter	12/26/2001	P-153	O 1.4
CL-20/11	Blockey-O'Bnen, Pamela	Letter	12/26/2001	P-154	O.6.5
CL-20/12	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-154	O.4.7
CL-20/13	Blockey-O'Bnen, Pamela	Letter	12/26/2001	P-154	O.4 8
CL-20/14	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-154	O.3 0
CL-20/15	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-154	O.1.2
CL-20/17	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-154	O.4.6
CL-20/18	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-154	O.1.2
CL-20/19	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-154	O.1.2
CL-20/20	Blockey-O'Bnen, Pamela	Letter	12/26/2001	P-155	O.2.3 4
CL-20/21	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-155	O.4 3
CL-20/22	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-155	O.3.0
CL-20/23	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-155	O.3.0
CL-20/24	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-155	O.1.8
CL-20/25	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-155	O.4.4
CL-20/26	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-155	O.4.4
CL-20/27	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-155	O.4.4
CL-20/28	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-155	O.1.2
CL-20/29	Blockey-O'Bnen, Pamela	Letter	12/26/2001	P-155	O.1.2
CL-20/30	Blockey-O'Bnen, Pamela	Letter	12/26/2001	P-155	O.1.16

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-20/31	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-155	O.1.3
CL-20/32	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-155	O.3.0
CL-20/33	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-155	O.1.6
CL-20/34	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-156	O.1.6
CL-20/35	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-156	O.4.3
CL-20/36	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-156	O.1.4
CL-20/37	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-156	O.1.6
CL-20/38	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-156	O.1.4
CL-20/40	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-156	O.1.4
CL-20/41	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-156	O.4.9
CL-20/42	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-156	O.4.8
CL-20/43	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-156	O.5.4
CL-20/44	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-156	O.2.2
CL-20/45	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-157	O.2.2
CL-20/47	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-157	O.1.9
CL-20/48	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-157	O.1.9
CL-20/49	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-157	O.1.9
CL-20/50	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-157	O.1.10
CL-20/51	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-157	O.1.10
CL-20/52	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-157	O 1.6
CL-20/53	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-157	O 2 2
CL-20/54	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-157	O.1.6
CL-20/55	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-157	O.1.6
CL-20/56	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-157	O.1.6
CL-20/57	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O.3.0
CL-20/58	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O.3 0
CL-20/59	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O 3 0
CL-20/60	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O 3 0
CL-20/61	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O.2 3 2
CL-20/62	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O.2.3 2
CL-20/63	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O.2.3 2
CL-20/64	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O.6.5
CL-20/65	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O.2.2
CL-20/66	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O.2.2
CL-20/67	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O.2 2
CL-20/68	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O.1.2
CL-20/69	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O.3 0

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-20/70	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O.1.6
CL-20/71	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O.4.3
CL-20/72	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O 3.0
CL-20/73	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O.4.2
CL-20/74	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-159	O.2.4.1
CL-20/75	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-159	O.3 0
CL-20/76	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-159	O.1.2
CL-20/77	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-159	O.4.3
CL-20/78	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-159	O.4.3
CL-20/79	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-159	O.2.4.1
CL-20/80	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-159	O.2.4.1
CL-20/81	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-159	O.4 4
CL-20/82	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-159	O.6 5
CL-20/83	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-159	O.5.4
CL-20/84	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-159	O.4.4
CL-20/85	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-160	O.1.15
CL-20/86	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-160	O.1.15
CL-20/87	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-160	O.5.4
CL-20/88	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-160	O 4 8
CL-20/89	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-160	O.1.6
CL-20/90	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-160	O.1.6
CL-20/91	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-160	O.1.6
CL-20/92	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-160	O.1.6
CL-20/93	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-160	O.1.6
CL-20/94	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-160	O.1.6
CL-20/95	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-160	O 2.2
CL-20/96	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-160	O.1.6
CL-20/97	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-160	O.1.6
CL-20/98	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-160	O 1.6
CL-20/99	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-160	O.1.6
CL-20/100	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-160	O.1.7
CL-20/101	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-161	O.1.7
CL-20/102	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-161	O.1.7
CL-20/103	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-161	O.1.6
CL-20/104	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-161	O.1.6
CL-20/105	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-161	O.1.6
CL-20/106	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-161	O.1.6
CL-20/107	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-161	O.2.2
CL-20/108	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-161	O 6.5

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Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-20/109	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-161	O.4.1.1
CL-20/110	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-161	O 4.1.1
CL-20/111	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-161	O 4.1.1
CL-20/112	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-161	O.4.1.1
CL-20/113	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-161	O.5.2
CL-20/114	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-161	O.4.3
CL-20/115	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-162	O 6 3
CL-20/116	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-162	O 4.5
CL-20/117	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-162	O 6.5
CL-20/118	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-162	O 6.5
CL-21/1	Guynup, Sharon	Letter	1/19/2002	P-163	O 2.2
CL-22/1	sublimation@webtv.net	Letter	1/19/2002	P-164	O.6.5
CL-23/1	Long, A. J. (Fred)	Letter	1/20/2002	P-165	O.4.1.1
CL-24/1	Griffiths, Rachel	Letter	1/20/2002	P-166	O 2.2
CL-24/2	Griffiths, Rachel	Letter	1/20/2002	P-166	O.5.9
CL-24/3	Griffiths, Rachel	Letter	1/20/2002	P-166	O.1.16
CL-24/4	Griffiths, Rachel	Letter	1/20/2002	P-166	O 2.3.4
CL-24/5	Griffiths, Rachel	Letter	1/20/2002	P-166	O.4.1.1
CL-24/6	Griffiths, Rachel	Letter	1/20/2002	P-166	O.2 2
CL-25/1	Russell, Edward T.	Letter	1/20/2002	P-167	O.2 2
CL-25/2	Russell, Edward T.	Letter	1/20/2002	P-167	O.1.16
CL-25/3	Russell, Edward T.	Letter	1/20/2002	P-167	O.4.9
CL-25/4	Russell, Edward T.	Letter	1/20/2002	P-167	O.4.4
CL-25/5	Russell, Edward T.	Letter	1/20/2002	P-167	O.5.9
CL-25/6	Russell, Edward T.	Letter	1/20/2002	P-167	O.1.16
CL-25/7	Russell, Edward T.	Letter	1/20/2002	P-167	O.4.8
CL-25/8	Russell, Edward T.	Letter	1/20/2002	P-167	O.1 6
CL-25/9	Russell, Edward T.	Letter	1/20/2002	P-167	O.5 8
CL-25/10	Russell, Edward T.	Letter	1/20/2002	P-167	O.2.2
CL-25/11	Russell, Edward T.	Letter	1/20/2002	P-167	O.4.1.1
CL-25/12	Russell, Edward T.	Letter	1/20/2002	P-167	O.6 5
CL-26/1	Matthews, Dave	Letter	1/21/2002	P-168	O.1.16
CL-26/2	Matthews, Dave	Letter	1/21/2002	P-168	O.2.3.4
CL-26/3	Matthews, Dave	Letter	1/21/2002	P-168	O.4 2
CL-26/4	Matthews, Dave	Letter	1/21/2002	P-168	O.2.3.3
CL-26/5	Matthews, Dave	Letter	1/21/2002	P-168	O.4 8
CL-26/6	Matthews, Dave	Letter	1/21/2002	P-168	O.4.7
CL-26/7	Matthews, Dave	Letter	1/21/2002	P-168	O.1 6
CL-26/8	Matthews, Dave	Letter	1/21/2002	P-168	O 1 6

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-26/9	Matthews, Dave	Letter	1/21/2002	P-168	O.1.6
CL-26/10	Matthews, Dave	Letter	1/21/2002	P-168	O.5.8
CL-26/11	Matthews, Dave	Letter	1/21/2002	P-168	O.5.2
CL-26/12	Matthews, Dave	Letter	1/21/2002	P-168	O 5.5
CL-26/13	Matthews, Dave	Letter	1/21/2002	P-168	O.2.2
CL-26/14	Matthews, Dave	Letter	1/21/2002	P-168	O 5.2
CL-26/15	Matthews, Dave	Letter	1/21/2002	P-168	O.4.1.1
CL-27/1	Schumann, Klaus	Letter	1/21/2002	P-169	O 5.9
CL-27/2	Schumann, Klaus	Letter	1/21/2002	P-169	O.5 2
CL-27/3	Schumann, Klaus	Letter	1/21/2002	P-169	O.2 4
CL-28/1	Larson, Dennis	Letter	1/21/2002	P-170	O.5.10
CL-29/1	Kellerman, Martin	Letter	1/21/2002	P-171	O 4.8
CL-29/2	Kellerman, Martin	Letter	1/21/2002	P-171	O.2.3 4
CL-29/3	Kellerman, Martin	Letter	1/21/2002	P-171	O.4.1.1
CL-30/1	Heider, Kenneth J.	Letter	12/26/2001	P-172	O.6 5
CL-30/2	Heider, Kenneth J.	Letter	12/26/2001	P-173	O.6.1
CL-30/3	Heider, Kenneth J.	Letter	12/26/2001	P-173	O.6.1
CL-30/4	Heider, Kenneth J.	Letter	12/26/2001	P-173	O.2.3 4
CL-30/5	Heider, Kenneth J.	Letter	12/26/2001	P-173	O.6.1
CL-30/6	Heider, Kenneth J.	Letter	12/26/2001	P-173	O.6.1
CL-30/7	Heider, Kenneth J.	Letter	12/26/2001	P-173	O.6.1
CL-30/8	Heider, Kenneth J.	Letter	12/26/2001	P-173	O 6.1
CL-30/9	Heider, Kenneth J.	Letter	12/26/2001	P-173	O 6.1
CL-30/10	Heider, Kenneth J.	Letter	12/26/2001	P-173	O.6.1
CL-30/11	Heider, Kenneth J.	Letter	12/26/2001	P-173	O.6.1
CL-30/12	Heider, Kenneth J.	Letter	12/26/2001	P-173	O.6.1
CL-30/13	Heider, Kenneth J.	Letter	12/26/2001	P-173	O 6.1
CL-31/1	Gallagher, Michael P.	Letter	12/28/2001	P-174	O 6.5
CL-31/2	Gallagher, Michael P.	Letter	12/28/2001	P-174	O 6.5
CL-31/3	Gallagher, Michael P.	Letter	12/28/2001	P-174	O.2.3.3
CL-31/4	Gallagher, Michael P.	Letter	12/28/2001	P-174	O 2 3.4
CL-31/5	Gallagher, Michael P.	Letter	12/28/2001	P-174	O.2 3.2
CL-31/6	Gallagher, Michael P.	Letter	12/28/2001	P-175	O.6.1
CL-31/7	Gallagher, Michael P.	Letter	12/28/2001	P-175	O.1.9
CL-31/8	Gallagher, Michael P.	Letter	12/28/2001	P-175	O.1.2
CL-31/9	Gallagher, Michael P.	Letter	12/28/2001	P-175	O.1.3
CL-31/10	Gallagher, Michael P.	Letter	12/28/2001	P-175	O.1.6
CL-31/11	Gallagher, Michael P.	Letter	12/28/2001	P-175	O.1.6
CL-31/12	Gallagher, Michael P.	Letter	12/28/2001	P-175	O.1 9

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Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-31/13	Gallagher, Michael P.	Letter	12/28/2001	P-175	O.1.9
CL-31/14	Gallagher, Michael P.	Letter	12/28/2001	P-175	O.6.1
CL-31/15	Gallagher, Michael P.	Letter	12/28/2001	P-175	O.1.7
CL-31/16	Gallagher, Michael P.	Letter	12/28/2001	P-175	O 6.1
CL-31/17	Gallagher, Michael P.	Letter	12/28/2001	P-175	O 6.1
CL-31/18	Gallagher, Michael P.	Letter	12/28/2001	P-175	O 2.3 3
CL-31/19	Gallagher, Michael P.	Letter	12/28/2001	P-175	O.6.1
CL-32/1	Clark, Susan	Letter	1/24/2002	P-176	O 2.2
CL-32/2	Clark, Susan	Letter	1/24/2002	P-176	O.2.3 3
CL-32/3	Clark, Susan	Letter	1/24/2002	P-176	O.1.6
CL-33/1	Nagel, Margaret	Letter	1/24/2002	P-177	O 2.2
CL-33/2	Nagel, Margaret	Letter	1/24/2002	P-177	O 6.3
CL-33/3	Nagel, Margaret	Letter	1/24/2002	P-177	O.1.6
CL-33/4	Nagel, Margaret	Letter	1/24/2002	P-177	O.1.6
CL-33/5	Nagel, Margaret	Letter	1/24/2002	P-177	O 2.2
CL-33/6	Nagel, Margaret	Letter	1/24/2002	P-177	O 2.2
CL-33/7	Nagel, Margaret	Letter	1/24/2002	P-177	O 2.3 4
CL-33/8	Nagel, Margaret	Letter	1/24/2002	P-177	O 4.2
CL-33/9	Nagel, Margaret	Letter	1/24/2002	P-177	O.4.8
CL-33/10	Nagel, Margaret	Letter	1/24/2002	P-177	O.1.6
CL-33/11	Nagel, Margaret	Letter	1/24/2002	P-177	O.1.6
CL-33/12	Nagel, Margaret	Letter	1/24/2002	P-177	O.1.6
CL-33/13	Nagel, Margaret	Letter	1/24/2002	P-177	O.5 8
CL-33/14	Nagel, Margaret	Letter	1/24/2002	P-177	O.1.16
CL-33/15	Nagel, Margaret	Letter	1/24/2002	P-177	O.5.2
CL-33/16	Nagel, Margaret	Letter	1/24/2002	P-177	O.5.5
CL-33/17	Nagel, Margaret	Letter	1/24/2002	P-177	O.2.2
CL-33/18	Nagel, Margaret	Letter	1/24/2002	P-177	O.5 2
CL-33/19	Nagel, Margaret	Letter	1/24/2002	P-177	O.5.4
CL-33/20	Nagel, Margaret	Letter	1/24/2002	P-177	O.4.7
CL-34/1	Casten, Liane	Letter	1/24/2002	P-178	O.6.5
CL-34/2	Casten, Liane	Letter	1/24/2002	P-178	O.1 6
CL-34/3	Casten, Liane	Letter	1/24/2002	P-178	O.6 3
CL-34/4	Casten, Liane	Letter	1/24/2002	P-178	O.4.8
CL-34/5	Casten, Liane	Letter	1/24/2002	P-178	O.6.5
CL-35/1	Kim, Mary	Letter	1/25/2002	P-179	O.5.2
CL-36/1	Miller, Suzanne	Letter	1/25/2002	P-180	O.5 2
CL-36/2	Miller, Suzanne	Letter	1/25/2002	P-180	O.2 2
CL-36/3	Miller, Suzanne	Letter	1/25/2002	P-180	O 5.9

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page In Appendix P	Section of Appendix O where comment is addressed
CL-36/4	Miller, Suzanne	Letter	1/25/2002	P-180	O.2.2
CL-36/5	Miller, Suzanne	Letter	1/25/2002	P-180	O 4 8
CL-36/6	Miller, Suzanne	Letter	1/25/2002	P-180	O 2.4 2
CL-36/7	Miller, Suzanne	Letter	1/25/2002	P-180	O.4.1.1
CL-36/8	Miller, Suzanne	Letter	1/25/2002	P-180	O 6 3
CL-37/1	Nordlund, James M.	Letter	1/25/2002	P-181	O.4.1.1
CL-38/1	Woelker, Roger	Letter	1/27/2002	P-182	O 2.3.4
CL-38/2	Woelker, Roger	Letter	1/27/2002	P-182	O 5.9
CL-38/3	Woelker, Roger	Letter	1/27/2002	P-182	O.2.3.4
CL-38/4	Woelker, Roger	Letter	1/27/2002	P-182	O.5 5
CL-38/5	Woelker, Roger	Letter	1/27/2002	P-182	O.1.6
CL-38/6	Woelker, Roger	Letter	1/27/2002	P-182	O 4.3
CL-38/7	Woelker, Roger	Letter	1/27/2002	P-182	O.4 1.1
CL-39/1	Moore, Anne	Letter	1/28/2002	P-183	O.6.5
CL-39/2	Moore, Anne	Letter	1/28/2002	P-183	O.4.2.
CL-39/3	Moore, Anne	Letter	1/28/2002	P-183	O.4.1.1
CL-39/4	Moore, Anne	Letter	1/28/2002	P-183	O.4 8
CL-39/5	Moore, Anne	Letter	1/28/2002	P-183	O.2.2
CL-39/6	Moore, Anne	Letter	1/28/2002	P-183	O.1.6
CL-40/1	Runkle, John	Letter	1/28/2002	P-184	O.1.16
CL-40/2	Runkle, John	Letter	1/28/2002	P-184	O.1.6
CL-40/3	Runkle, John	Letter	1/28/2002	P-184	O 4.8
CL-40/4	Runkle, John	Letter	1/28/2002	P-184	O 4.1.1
CL-41/1	Schlau, Benjamin	Letter	1/29/2002	P-185	O 6.5
CL-41/2	Schlau, Benjamin	Letter	1/29/2002	P-185	O.4.5
CL-42/1	Ferguson, Tom	Letter	1/29/2002	P-186	O.2.3.3
CL-42/2	Ferguson, Tom	Letter	1/29/2002	P-186	O 4.4
CL-42/3	Ferguson, Tom	Letter	1/29/2002	P-186	O 2.4.1
CL-42/4	Ferguson, Tom	Letter	1/29/2002	P-186	O 6 3
CL-42/5	Ferguson, Tom	Letter	1/29/2002	P-186	O 6.3
CL-43/1	Reed, Mary S.	Letter	1/29/2002	P-187	O.2.3.4
CL-43/2	Reed, Mary S.	Letter	1/29/2002	P-187	O 4.2
CL-43/3	Reed, Mary S.	Letter	1/29/2002	P-187	O.2.3.3
CL-43/4	Reed, Mary S.	Letter	1/29/2002	P-187	O 4 8
CL-43/5	Reed, Mary S.	Letter	1/29/2002	P-187	O.1.6
CL-43/6	Reed, Mary S.	Letter	1/29/2002	P-187	O.1.6
CL-43/7	Reed, Mary S	Letter	1/29/2002	P-187	O 5.8
CL-43/8	Reed, Mary S.	Letter	1/29/2002	P-187	O.1.16
CL-43/9	Reed, Mary S	Letter	1/29/2002	P-187	O 5 2

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-43/10	Reed, Mary S.	Letter	1/29/2002	P-187	O.5.5
CL-43/11	Reed, Mary S.	Letter	1/29/2002	P-187	O 2.2
CL-43/12	Reed, Mary S.	Letter	1/29/2002	P-187	O.5 2
CL-43/13	Reed, Mary S.	Letter	1/29/2002	P-187	O.4.7
CL-43/14	Reed, Mary S.	Letter	1/29/2002	P-187	O.4.7
CL-43/15	Reed, Mary S.	Letter	1/29/2002	P-187	O.5.9
CL-43/16	Reed, Mary S.	Letter	1/29/2002	P-187	O.5.2
CL-44/1	Borchamann, Patncia	Letter	1/29/2002	P-188	O.1.16
CL-44/2	Borchamann, Patricia	Letter	1/29/2002	P-188	O.1.16
CL-44/3	Borchamann, Patncia	Letter	1/29/2002	P-188	O.1.16
CL-44/5	Borchamann, Patricia	Letter	1/29/2002	P-189	O.2.3.4
CL-44/6	Borchamann, Patricia	Letter	1/29/2002	P-189	O 4.2
CL-44/7	Borchamann, Patricia	Letter	1/29/2002	P-189	O.1.6
CL-44/8	Borchamann, Patricia	Letter	1/29/2002	P-189	O 5.9
CL-44/9	Borchamann, Patricia	Letter	1/29/2002	P-189	O 2 2
CL-44/10	Borchamann, Patricia	Letter	1/29/2002	P-189	O 5.5
CL-44/11	Borchamann, Patricia	Letter	1/29/2002	P-189	O 2.2
CL-44/12	Borchamann, Patricia	Letter	1/29/2002	P-189	O 4.7
CL-44/13	Borchamann, Patricia	Letter	1/29/2002	P-189	O.4.7
CL-44/14	Borchamann, Patricia	Letter	1/29/2002	P-189	O 2 2
CL-44/15	Borchamann, Patricia	Letter	1/29/2002	P-189	O.5 2
CL-44/16	Borchamann, Patricia	Letter	1/29/2002	P-189	O.1.9
CL-45/1	McKeown, Diana S.	Letter	1/30/2002	P-190	O.5.2
CL-45/2	McKeown, Diana S.	Letter	1/30/2002	P-190	O.1.6
CL-45/3	McKeown, Diana S.	Letter	1/30/2002	P-190	O.1.16
CL-46/1	Ferguson, Tom	Letter	1/30/2002	P-191	O.5 2
CL-46/2	Ferguson, Tom	Letter	1/30/2002	P-191	O.5.2
CL-46/3	Ferguson, Tom	Letter	1/30/2002	P-191	O 4.4
CL-46/4	Ferguson, Tom	Letter	1/30/2002	P-191	O.1.7
CL-46/5	Ferguson, Tom	Letter	1/30/2002	P-191	O 6.3
CL-46/6	Ferguson, Tom	Letter	1/30/2002	P-191	O.6.3
CL-47/1	Ritter, David	Letter	1/30/2002	P-192	O 6.5
CL-47/2	Ritter, David	Letter	1/30/2002	P-192	O 6.5
CL-47/3	Ritter, David	Letter	1/30/2002	P-192	O.6.4
CL-47/4	Ritter, David	Letter	1/30/2002	P-192	O.5.2
CL-47/5	Ritter, David	Letter	1/30/2002	P-192	O 6.4
CL-47/6	Ritter, David	Letter	1/30/2002	P-192	O.2.4 2
CL-47/7	Ritter, David	Letter	1/30/2002	P-192	O 4 3

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-47/8	Ritter, David	Letter	1/30/2002	P-192	O 2.2
CL-47/9	Ritter, David	Letter	1/30/2002	P-192	O.2.3 4
CL-47/10	Ritter, David	Letter	1/30/2002	P-193	O.5.9
CL-47/11	Ritter, David	Letter	1/30/2002	P-193	O.5.9
CL-47/12	Ritter, David	Letter	1/30/2002	P-193	O.5.2
CL-47/13	Ritter, David	Letter	1/30/2002	P-193	O.5.5
CL-47/14	Ritter, David	Letter	1/30/2002	P-193	O.2.3 4
CL-47/15	Ritter, David	Letter	1/30/2002	P-193	O.2.3 4
CL-47/16	Ritter, David	Letter	1/30/2002	P-193	O.4.1.1
CL-47/17	Ritter, David	Letter	1/30/2002	P-193	O.1.9
CL-47/18	Ritter, David	Letter	1/30/2002	P-194	O.5.4
CL-48/1	Gunter, Paul	Letter	1/30/2002	P-195	O.5.2
CL-48/2	Gunter, Paul	Letter	1/30/2002	P-195	O.2.2
CL-48/3	Gunter, Paul	Letter	1/30/2002	P-195	O.1.16
CL-48/4	Gunter, Paul	Letter	1/30/2002	P-195	O.5.2
CL-48/5	Gunter, Paul	Letter	1/30/2002	P-195	O.2.1
CL-48/6	Gunter, Paul	Letter	1/30/2002	P-195	O.5 9
CL-48/7	Gunter, Paul	Letter	1/30/2002	P-196	O.6 4
CL-48/8	Gunter, Paul	Letter	1/30/2002	P-196	O.6 4
CL-48/9	Gunter, Paul	Letter	1/30/2002	P-196	O.1.9
CL-48/10	Gunter, Paul	Letter	1/30/2002	P-196	O.4.3
CL-48/11	Gunter, Paul	Letter	1/30/2002	P-196	O.5.4
CL-48/12	Gunter, Paul	Letter	1/30/2002	P-196	O.5 4
CL-48/13	Gunter, Paul	Letter	1/30/2002	P-196	O.5.4
CL-48/14	Gunter, Paul	Letter	1/30/2002	P-196	O.1 6
CL-48/15	Gunter, Paul	Letter	1/30/2002	P-196	O 4.6
CL-48/16	Gunter, Paul	Letter	1/30/2002	P-197	O 4.6
CL-48/17	Gunter, Paul	Letter	1/30/2002	P-197	O 4.1.1
CL-48/18	Gunter, Paul	Letter	1/30/2002	P-197	O.1.9
CL-48/19	Gunter, Paul	Letter	1/30/2002	P-197	O 2 1
CL-48/20	Gunter, Paul	Letter	1/30/2002	P-197	O.1.9
CL-48/21	Gunter, Paul	Letter	1/30/2002	P-197	O.1.9
CL-48/22	Gunter, Paul	Letter	1/30/2002	P-197	O.4.10
CL-48/23	Gunter, Paul	Letter	1/30/2002	P-197	O.4.10
CL-48/24	Gunter, Paul	Letter	1/30/2002	P-197	O 1.9
CL-48/25	Gunter, Paul	Letter	1/30/2002	P-197	O.5.9
CL-48/26	Gunter, Paul	Letter	1/30/2002	P-197	O.5.5
CL-48/27	Gunter, Paul	Letter	1/30/2002	P-197	O 5.2
CL-48/28	Gunter, Paul	Letter	1/30/2002	P-198	O 2.3 2

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-48/29	Gunter, Paul	Letter	1/30/2002	P-198	O.2.3.4
CL-48/30	Gunter, Paul	Letter	1/30/2002	P-198	O.2.3 4
CL-48/31	Gunter, Paul	Letter	1/30/2002	P-198	O.2.3.4
CL-48/32	Gunter, Paul	Letter	1/30/2002	P-198	O.2.3.3
CL-48/33	Gunter, Paul	Letter	1/30/2002	P-198	O.2.3.4
CL-48/34	Gunter, Paul	Letter	1/30/2002	P-198	O.2.3.4
CL-48/35	Gunter, Paul	Letter	1/30/2002	P-198	O.2.3.4
CL-48/36	Gunter, Paul	Letter	1/30/2002	P-198	O.2.3.4
CL-48/37	Gunter, Paul	Letter	1/30/2002	P-198	O.4.2
CL-48/38	Gunter, Paul	Letter	1/30/2002	P-198	O.2.3.3
CL-48/39	Gunter, Paul	Letter	1/30/2002	P-198	O.1.6
CL-48/40	Gunter, Paul	Letter	1/30/2002	P-198	O.1.6
CL-48/41	Gunter, Paul	Letter	1/30/2002	P-198	O.1.6
CL-48/42	Gunter, Paul	Letter	1/30/2002	P-199	O.5.8
CL-48/43	Gunter, Paul	Letter	1/30/2002	P-199	O.5.9
CL-48/44	Gunter, Paul	Letter	1/30/2002	P-199	O.5.2
CL-48/45	Gunter, Paul	Letter	1/30/2002	P-199	O 5.5
CL-48/46	Gunter, Paul	Letter	1/30/2002	P-199	O 2 2
CL-48/47	Gunter, Paul	Letter	1/30/2002	P-199	O.5 2
CL-48/48	Gunter, Paul	Letter	1/30/2002	P-199	O 4.7
CL-48/49	Gunter, Paul	Letter	1/30/2002	P-199	O.4.1.1
CL-49/1	Greene, Eileen	Letter	1/31/2002	P-200	O.1.6
CL-49/2	Greene, Eileen	Letter	1/31/2002	P-200	O.1.6
CL-50/1	Katz, Deb	Letter	1/31/2002	P-201	O 2.2
CL-50/2	Katz, Deb	Letter	1/31/2002	P-201	O.2.2
CL-50/3	Katz, Deb	Letter	1/31/2002	P-201	O.5.8
CL-50/4	Katz, Deb	Letter	1/31/2002	P-202	O.5.4
CL-50/5	Katz, Deb	Letter	1/31/2002	P-202	O.2.2
CL-50/6	Katz, Deb	Letter	1/31/2002	P-202	O.2 2
CL-50/7	Katz, Deb	Letter	1/31/2002	P-202	O.3 0
CL-50/8	Katz, Deb	Letter	1/31/2002	P-202	O.5.2
CL-50/9	Katz, Deb	Letter	1/31/2002	P-202	O.5 2
CL-50/10	Katz, Deb	Letter	1/31/2002	P-202	O.1 6
CL-50/11	Katz, Deb	Letter	1/31/2002	P-202	O.4.6
CL-50/12	Katz, Deb	Letter	1/31/2002	P-202	O 2.1
CL-50/13	Katz, Deb	Letter	1/31/2002	P-202	O.4.6
CL-50/14	Katz, Deb	Letter	1/31/2002	P-202	O.4.6
CL-50/15	Katz, Deb	Letter	1/31/2002	P-202	O 3 0
CL-50/16	Katz, Deb	Letter	1/31/2002	P-202	O.1.6

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-50/17	Katz, Deb	Letter	1/31/2002	P-202	O.1.6
CL-50/18	Katz, Deb	Letter	1/31/2002	P-202	O.3.0
CL-50/19	Katz, Deb	Letter	1/31/2002	P-202	O 4.2
CL-50/20	Katz, Deb	Letter	1/31/2002	P-203	O.1.6
CL-50/21	Katz, Deb	Letter	1/31/2002	P-203	O.2.3 4
CL-50/22	Katz, Deb	Letter	1/31/2002	P-203	O 2.2
CL-50/23	Katz, Deb	Letter	1/31/2002	P-203	O 4.4
CL-50/24	Katz, Deb	Letter	1/31/2002	P-203	O.5.2
CL-50/25	Katz, Deb	Letter	1/31/2002	P-203	O.1.7
CL-50/26	Katz, Deb	Letter	1/31/2002	P-203	O 4.6
CL-50/27	Katz, Deb	Letter	1/31/2002	P-203	O 5.2
CL-50/28	Katz, Deb	Letter	1/31/2002	P-203	O 2.4.1
CL-51/1	Drey, Kay	Letter	1/30/2002	P-204	O 1.16
CL-51/2	Drey, Kay	Letter	1/30/2002	P-204	O 4 6
CL-51/3	Drey, Kay	Letter	1/30/2002	P-204	O 4 6
CL-51/4	Drey, Kay	Letter	1/30/2002	P-204	O.4 6
CL-51/5	Drey, Kay	Letter	1/30/2002	P-205	O.5.1
CL-51/6	Drey, Kay	Letter	1/30/2002	P-205	O 6 1
CL-51/7	Drey, Kay	Letter	1/30/2002	P-205	O.2.3.4
CL-51/8	Drey, Kay	Letter	1/30/2002	P-205	O 2.3.4
CL-51/9	Drey, Kay	Letter	1/30/2002	P-205	O.1.3
CL-51/10	Drey, Kay	Letter	1/30/2002	P-205	O.1.6
CL-51/11	Drey, Kay	Letter	1/30/2002	P-205	O.1.8
CL-51/12	Drey, Kay	Letter	1/30/2002	P-205	O.2.3.4
CL-51/13	Drey, Kay	Letter	1/30/2002	P-205	O.1 6
CL-51/14	Drey, Kay	Letter	1/30/2002	P-205	O.2.3.4
CL-51/15	Drey, Kay	Letter	1/30/2002	P-205	O 1.2
CL-51/16	Drey, Kay	Letter	1/30/2002	P-205	O.4 8
CL-51/17	Drey, Kay	Letter	1/30/2002	P-205	O 4.8
CL-51/18	Drey, Kay	Letter	1/30/2002	P-205	O 4 8
CL-51/19	Drey, Kay	Letter	1/30/2002	P-205	O.4.10
CL-51/20	Drey, Kay	Letter	1/30/2002	P-205	O.2 2
CL-51/21	Drey, Kay	Letter	1/30/2002	P-206	O.2 4.1
CL-51/22	Drey, Kay	Letter	1/30/2002	P-206	O.4.3
CL-51/23	Drey, Kay	Letter	1/30/2002	P-206	O 4.8
CL-51/24	Drey, Kay	Letter	1/30/2002	P-206	O.2 2
CL-51/25	Drey, Kay	Letter	1/30/2002	P-206	O 4 8
CL-51/26	Drey, Kay	Letter	1/30/2002	P-206	O 2.2
CL-51/27	Drey, Kay	Letter	1/30/2002	P-206	O 6 5

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-51/28	Drey, Kay	Letter	1/30/2002	P-206	O.2 2
CL-52/1	Johnsrud, Judith	Letter	2/21/2002	P-207	O.6.5
CL-52/2	Johnsrud, Judith	Letter	2/21/2002	P-207	O.5.4
CL-52/3	Johnsrud, Judith	Letter	2/21/2002	P-207	O.5 4
CL-52/4	Johnsrud, Judith	Letter	2/21/2002	P-207	O.2.2
CL-52/5	Johnsrud, Judith	Letter	2/21/2002	P-207	O.2 2
CL-52/6	Johnsrud, Judith	Letter	2/21/2002	P-207	O.5 2
CL-52/7	Johnsrud, Judith	Letter	2/21/2002	P-207	O.5.2
CL-52/8	Johnsrud, Judith	Letter	2/21/2002	P-207	O.5.9
CL-52/9	Johnsrud, Judith	Letter	2/21/2002	P-207	O.5.4
CL-52/10	Johnsrud, Judith	Letter	2/21/2002	P-207	O.5.4
CL-52/11	Johnsrud, Judith	Letter	2/21/2002	P-207	O.4.8
CL-52/12	Johnsrud, Judith	Letter	2/21/2002	P-207	O.1.6
CL-52/13	Johnsrud, Judith	Letter	2/21/2002	P-208	O.1.6
CL-52/14	Johnsrud, Judith	Letter	2/21/2002	P-208	O.4.7
CL-52/15	Johnsrud, Judith	Letter	2/21/2002	P-208	O 4.1.1
CL-52/16	Johnsrud, Judith	Letter	2/21/2002	P-208	O 4.1.1
CL-52/17	Johnsrud, Judith	Letter	2/21/2002	P-208	O.4.1.1
CL-52/18	Johnsrud, Judith	Letter	2/21/2002	P-208	O 4.1.1
CL-52/19	Johnsrud, Judith	Letter	2/21/2002	P-208	O.1.6
CL-52/20	Johnsrud, Judith	Letter	2/21/2002	P-208	O.1.6
CL-52/21	Johnsrud, Judith	Letter	2/21/2002	P-208	O.1.6
CL-52/22	Johnsrud, Judith	Letter	2/21/2002	P-208	O.2.4.3
CL-52/23	Johnsrud, Judith	Letter	2/21/2002	P-208	O.2.2
CL-52/24	Johnsrud, Judith	Letter	2/21/2002	P-208	O.2.2
CL-52/25	Johnsrud, Judith	Letter	2/21/2002	P-208	O.6 5
CL-53/1	Becker, Rochelle	Letter	2/2/2002	P-209	O.5.2
CL-53/2	Becker, Rochelle	Letter	2/2/2002	P-209	O.2.4.1
CL-53/3	Becker, Rochelle	Letter	2/2/2002	P-209	O.5.9
CL-53/4	Becker, Rochelle	Letter	2/2/2002	P-209	O.4.4
CL-53/5	Becker, Rochelle	Letter	2/2/2002	P-209	O.5.2
CL-53/6	Becker, Rochelle	Letter	2/2/2002	P-209	O 5.2

O.1 Impacts

O.1.1 Onsite/Offsite Land Use

Comment: Page 4-6, Section 4.3.1.2, Lines 15-16. This section defines a previously disturbed area as an area where land disturbance occurred "during construction or operation of the site." This definition may allow licensees to undertake decommissioning activities resulting in adverse environmental impacts without first performing a site-specific analysis of those impacts. For example, it might allow a licensee to disturb an area that was disturbed several decades ago during plant construction even if that area was not used during plant operation and has essentially returned to its original condition, i.e. native species have fully returned. The Supplement should define what constitutes a "previous" disturbance, e.g., by specifying a time frame, so such adverse impacts are not permitted to occur. **(CL-16/23)**

Comment: Page 4-6, Section 4.3.1.2, Lines 25-29. The following terms are too broad or too vague to provide licensees sufficient guidance about when a site-specific analysis is necessary with regard to SMALL impacts, "very little new development" and "minimal changes;" with regard to MODERATE impacts, "considerable new development" and "some changes;" and with regard to LARGE impacts, "large-scale new development" and "major change." Providing specific examples from decommissioning or decommissioned facilities would be very useful. **(CL-16/24)**

Response: *Section 4.3.1 was revised to clarify that offsite changes to land use can not be evaluated generically and would require a site-specific analysis. The concept of "previously disturbed land", "very little new development," "minimal changes," etc. no longer is the criteria for initiating a site-specific analysis.*

Comment: Page 4-6, Section 4.3.1.3, Lines 33-41. Using NUREG-1437's estimate that ~1 to ~4 ha (~2.5 to 10 ac) of land is needed for steam generator replacement activities, the document assumes that the land use impacts of major component removal during decommissioning "should be similar or less," and that the land used during major component removal "[g]enerally ... has been previously disturbed during construction of the facility." Does this mean that a licensee must perform a site-specific analysis of impacts if the land use impacts of major component removal may or will be greater than the estimated impacts of steam generator replacement, or if the land used during major component removal has not been previously disturbed during construction of the facility? **(CL-16/25)**

Response: *Section 4.1.3 was revised. A site-specific analysis of onsite land use is not required because this level of impact has already been examined within the context of the operating license and is within the land use allowed by existing zoning. The estimate of land needed for major component removal is for illustration only and does not constitute a limit.*

Comment: Page 4-7, Section 4.3.1.3, Lines 1-2. The Supplement notes that "almost all of the sites" will use land previously disturbed during construction; should one assume that a facility using land not previously disturbed will need to conduct a site-specific analysis? Similarly, under "Conclusions" on that page, it states that impacts for "offsite land use" are considered small unless "major transportation upgrades are necessary." The examples given are establishing water, rail or road transportation links. Is one to assume that any establishment of offsite transportation would require a site-specific analysis? Would impacts only be to off-site land uses or to on-site as well? Specific examples would help here. **(CL-16/26)**

Response: *Section 4.3.1 was revised. The staff has revised Section 4.3.1 to state that offsite changes in land use cannot be evaluated generically. Onsite, no additional analysis is required because no change in land use is required. A licensee should perform a site-specific analysis for all new offsite land use including major transportation upgrades because of the potential for MODERATE or LARGE impacts.*

Comment: Page 4-7, Section 4.3.1.3, Lines 10-12. Please explain the basis for the assumption that where previously disturbed areas are not large enough to support decommissioning activities, "it is likely" that the impact of disturbing previously undisturbed areas would be "temporary and SMALL." **(CL-16/27)**

Response: *Section 4.3.1 was revised. The largest land disturbances associated with decommissioning appear to be about the same size or smaller than those needed for steam generator replacement, 1 to 4 ha (2.5 to 10 acres). This amount of land, even if previously undisturbed, could be returned to a near-natural state in 1 to 5 years and represents only about 2.5% of even relatively small (400 ha) sites. While it is possible for disturbances even this minor to cause adverse ecological consequences (disturbance of a wetland, for example), it is unlikely that such ecologically valuable land would be disturbed. In addition, this amount of land does not represent an impact on overall land use.*

Comment: The Staff should visit TMI and then travel to Clinton Lake to examine how perceptions and reality affect "off site land use." The GEIS must acknowledge the potential for adverse economic impacts on a community during decommissioning. **(CL-02/47)**

Response: *Land use and socioeconomics are addressed in Section 4.3.1 of this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

O.1.2 Surface and Groundwater Quality and Use

Comment: Page 3-11, Section 3.1.3, Lines 17-18. Please revise the document to clarify that Resource Conservation and Recovery Act hazardous waste disposal permits and Clean Water Act NPDES permits are administered either by EPA or, where EPA has authorized the state RCRA program or the state has assumed the NPDES program, by the state. (See NUREG 1628, Question 4.2.2) Also, the text should briefly discuss the management of PCBs and PCB-containing materials under the Toxic Substances Control Act. **(CL-16/19)**

Response: *Section 3.1.3 was revised to clarify the regulation and administration of the Resource Conservation and Recovery Act (RCRA) and NPDES permits.*

Comment: Page 4-9, Section 4.3.2.2, Lines 12-14. The Supplement should briefly describe the "common engineering practices to limit water use impacts." When describing how water impacts were evaluated (Section 4.3.2.3.), it would be helpful to include the average and maximum water usage pre- and post-operation of those plants that have ceased operation. **(CL-16/28)**

Response: *Section 4.3.2.2 was revised. The phrase "common engineering practice to limit water use impacts" was removed and estimates of the average and maximum water usage were provided.*

Comment: Section 4.3.3.3, p 4-12, line 23 – pH would not necessarily (normally) be measured per the LTP. Also, while considerable attention is placed on minimizing spills during decommissioning, hazardous spills have occurred at decommissioning sites. The same types of activities as performed at operating units, which have resulted in spills at operating units, can lead to spills at decommissioning units. The likelihood is less since less water treatment and so less bulk chemical handling is typically performed at decommissioning sites. **(CL-09/17)**

Response: *Section 4.3.3.3 was revised eliminating the implication that non-radiological groundwater parameters (such as pH) would be measured during LTP groundwater monitoring.*

Comment: Pages 4-10 through 4-12, Section 4.3.3. This section focuses primarily on the water quality impacts of nonradiological discharges from point sources to surface water (and the regulation of such discharges under the NPDES program). It should more fully discuss the water quality impacts of both nonradiological discharges to groundwater (and their possible

regulation under state programs) and non-point source pollution, and if necessary should indicate that one or both of these types of impacts require site-specific analysis. All of these types of discharges have potential water quality impacts that need to be evaluated. **(CL-16/29)**

Comment: Pages 4-10 to 4-11, Section 4.3.3.1. This subsection on water quality regulations should distinguish between "intentional" and "unintentional" nonradiological discharges to both surface water and groundwater. As currently drafted, the section blurs these distinct types of discharges and the regulatory schemes relevant to each. **(CL-16/30)**

Comment: Page 4-10, Section 4.3.3.1, Line 42. The Supplement refers to a "permitting authority" before it identifies what type of permit is at issue. As a result, the reader does not know who the permitting authority is. It would be helpful to note that "intentional releases of non-radiological discharges" to surface waters are regulated under EPA or state wastewater discharge permitting programs, and such discharges to groundwater may be regulated under state programs. **(CL-16/31)**

Comment: Page 4-10, Section 4.3.3.1, Lines 41-44 and Page 4-11, Lines 1-2. This paragraph is confusing in light of the statement on Page 4-12 "that the issue of surface or groundwater quality for all decommissioning activities is generic and that the environmental impacts for these activities will be SMALL." As currently written, it suggests that NRC will obtain a permitting authority's "environmental assessment of aquatic impacts" and "consider the assessment in its determination of the magnitude of the environmental impacts" of decommissioning activities at individual sites. It also suggests that NRC will "establish its own impact determination[s]" on a site-specific basis in the absence of such environmental assessments. Please clarify. **(CL-16/32)**

Comment: Page 4-11, Section 4.3.3.1, Lines 4-5. Please revise the Supplement to indicate that the NPDES program only regulates point source discharges to surface waters, not discharges to groundwater or non-point source pollution. (See also Section 4.3.3.4.) As noted above, the document should note that point source discharges to surface waters also may be regulated under state wastewater discharge permitting programs, and discharges to groundwater may be regulated under state programs. **(CL-16/33)**

Comment: Page 4-11, Section 4.3.3.1, Lines 7-9 and Section 4.3.3.2, Line 16. The document assumes that facilities' NPDES permit limits during decommissioning "are generally the same limits that are enforced for an operating plant," that facilities' permits "may require a monitoring program," and that "these monitoring programs are usually continued through the decommissioning period." Should the reader assume that a licensee must perform a site-specific

analysis of water quality impacts if any one of these conditions is not met? If not, why not? (See also Section 4.3.3.4: is a site-specific analysis required where discharges to surface water may or will exceed the NPDES-permitted levels? Again, if not, why not?) **(CL-16/34)**

Comment: Page 4-11, Section 4.3.3.2, Lines 17-18, 21-23. This language could be interpreted erroneously to indicate that discharges to groundwater are monitored under NPDES permits. The Supplement should address the water quality impacts of decommissioning activities on groundwater separately from the impacts on surface water. In lines 34-35, the Supplement should describe the conditions in which nonradiological impacts to groundwater and from non-point source pollution may be considered SMALL, MODERATE or LARGE. **(CL-16/35)**

Comment: Page 4.12, Section 4.3.3.4. As noted above, the NPDES program only regulates nonradiological discharges to surface waters from point sources, not discharges to groundwater. This subsection should also draw conclusions about the potential water quality impacts of nonradiological discharges to groundwater and non-point source pollution during decommissioning. **(CL-16/38)**

Comment: I cannot stress enough that the groundwater issues are not adequately addressed. **(CL-20/68)**

Response: *Section 4.3.3 was extensively revised and reorganized to address the above comments.*

Comment: The Supplement should provide a more robust discussion of ground water impacts. Further detail on EPA's concerns is found in the enclosed "Detailed comments." **(CL-16/5)**

Response: *Section 4.3.3 was extensively revised and reorganized to respond to the specific comments.*

Comment: Pages 4-11 to 4-12, Section 4.3.3.3. The discussion in this section could support a requirement for licensees to perform site-specific analyses of the potential water quality impacts of their decommissioning activities under certain circumstances; notably, language such as performing these activities in different orders can have a "significantly different impact on water quality," that the SAFSTOR option "may exacerbate water quality issues," and that certain activities "may result in changes in local water chemistry" implies the potential need for site-specific analysis.

In particular, the statement that rubblization may affect groundwater pH and thereby "affect the transport properties of radioactive and nonradioactive chemicals in the subsurface" appears to require a site-specific analysis. The document notes in other places (e.g., Page 1-7, Lines 26-33) that the nonradiological impacts of rubblization, including concrete leaching into groundwater, can be evaluated generically. Section 4.3.3.3 does not support this conclusion. **(CL-16/36)**

Response: *Although the decommissioning activities themselves and the order in which the activities are performed control the impacts to water quality the staff concluded that the impacts on the nonradioactive aspects of water quality are SMALL (neither detectable or destabilizing), easily mitigated and could be evaluated generically. The staff also concluded that if a licensee chose to dispose of slightly contaminated building debris below ground in a manner that is consistent with the radiological site release criteria and solid waste disposal requirements the non-radiological impacts on the groundwater would be easily mitigated, small, and could be evaluated generically. The staff agrees with the commentor with respect to the evaluation of the radiological impacts to groundwater. A site specific analysis would be required, see Section 4.3.3.3. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Page 4-12, Section 4.3.3.3, Lines 16-17. The Supplement states that unintentional releases of hazardous substances historically have been infrequent at decommissioning facilities, and that except for a few substances, hazardous substances spills are "localized, quickly detected, and relatively easy to remediate." Does this mean that a licensee must perform a site-specific analysis of potential water quality impacts if a hazardous substance is spilled or otherwise released to the environment during decommissioning. How is "hazardous substance" defined? Examples or a better definition of "localized," "quickly detected," and "ease of remediation" should also be provided. **(CL-16/37)**

Response: *As the commentor stated, unintentional releases of hazardous substances during decommissioning have been infrequent and when they have occurred the spills are localized, quickly detected, and remediated. The expectation is that the occurrence of such events will continue to be infrequent. A site specific evaluation of the significance and consequences of the event is appropriate at the time of the occurrence of the spill. The results of that evaluation dictate the response to the spill. Even a site specific evaluation in advance of decommissioning would not evaluate the impact of all potential hazardous waste spills under all conditions. Rather than evaluating the impact of all potential onsite hazardous spills, licensees should take specific measures to reduce the likelihood and magnitude of the spill using administrative procedures, best management practices, and training. Should a spill occur, the licensee has emergency procedures in place to rapidly respond to the spill and assess its consequences. Therefore the staff concludes that a detailed site specific assessment of potential spills before*

the commencement of decommissioning activities would be of little value in protecting the groundwater. Accidental spills are infrequent and the focus should continue to be on prevention. If a spill should occur then evaluation and remediation of the consequences of the spill are required. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: Under Water Quality p.4-10, 4-11 the NRC must stop giving the impression that it is sheer chance that nuclear reactors are located on water, when in fact they require millions of gallons of water a day to operate. NRC assumes compliance with NPDES discharge permits for non-radioactive contaminants (NPDES and the Clean Water Act do not cover most radioactive contaminants, this was purposeful, so industry and the armaments crowd could do what they liked,) however, NPDES permits are often violated or bypassed. **(CL-20/28)**

Response: *The Supplement does not intentionally mislead the reader in the requirements for large quantities of water necessary for cooling. See the explanation in Section 3.1.3, "Cooling and Auxiliary Water Systems", for a detailed account of once-through and closed cycle cooling systems and water requirements. Point source discharges to surface waters are regulated by the NPDES permit system. Licensees are required to comply with the requirements of their permit. This Supplement does not evaluate the potential impacts associated with non-compliance of the NPDES permit. Radiological releases to surface waters are regulated by 10 CFR Part 20. Licensees are required to stay within the 10 CFR Part 20 Appendix B guidelines for the release of radioisotopes. Again this Supplement does not evaluate the potential impacts associated with noncompliance with the regulations. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: On Page 4-9 the NUREG concludes (Section 4.3.2.4) that the environmental impact of water usage will be small. In the evaluation they consider the anticipated reduction in water usage for cooling in the condenser. This conclusion appears reasonable, however the analysis should also consider the environmental effects of the loss of heat provided by cooling water discharged to a closed lake or pond system that is a habitat for aquatic animals and vegetation. Many nuclear facilities are on natural or man-made bodies of water making this environmental effect generic in nature. **(CL-31/8)**

Response: *The impacts of loss heat are not within the scope of this Supplement because the impacts are caused by the cessation of operations, not by decommissioning activities. The decision to cease operations is the decision of the licensee, not the NRC. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: (4.3.2.4) ENVIRONMENTAL IMPACTS of DECOMMISSIONING PERMANENTLY SHUTDOWN NUCLEAR POWER REACTORS; Water Use - Conclusions: (The discussion 4.3.1.4 is also relevant)

The GEIS stated, "The overall water use of a nuclear facility will dramatically decrease once the reactor has stopped operating and the demand for cooling and makeup water ceases." (4.9-4.10) On the surface, this statement appears to be correct. However, at Three Mile Island, a considerable amount of "cleanup water" was created after the plant was shut down:

In 1980, the Susquehanna Valley Alliance, based in Lancaster, successfully prevented Met Ed (GPU) from dumping 700,000 gallons of radioactive water into the Susquehanna River. Ten years later (December, 1990), despite legal objections, GPU began evaporating 2.3 million gallons of accident-generated radioactive water (AGW).

.... Can anyone at the NRC point to an official document that classifies 700,000 gallons of radioactive water (which later grew to 2.3 million gallons) as "SMALL"?

The people who live and work around TMI have found that the risks associated with additional cleanup water are not "SMALL." **(CL-02/48)**

Comment: (4.3.3.4) ENVIRONMENTAL IMPACTS of DECOMMISSIONING PERMANENTLY SHUTDOWN NUCLEAR POWER REACTORS;

Water Quality - Conclusions:

"The staff concludes that the issue of surface or ground water quality for all decommissioning activities is generic and that the environmental impacts for these activities will be SMALL" (4-12). Persistent "water quality" problems continue to plague TMI, a prematurely shut down reactor:

On November 2, 1993, in a letter to the NRC, GPU Nuclear acknowledged: "During the TMI-2 accident, the cork seam located in the Auxiliary Building Seal Injection Valve Room (SIVR) was contaminated with radioactive water. Attempts to contain the contamination within the room have been unsuccessful. During the past 14 years, radioactive material has spread along the joint in one direction into the Annulus, and in the other direction into the Auxiliary Building, Service Building and Control Building West (R. L. Long, GPU Nuclear, Director, Services Division TMI-2)."

On June 4, 1998, "GPUN found several pipes penetrating the wall between the turbine building basement and the control building in Unit-2 to be open on both sides of the wall. This condition was contrary to the Unit-2 post-defueling monitored storage safety analysis report (PDMS-SAR) which requires entrances to the control building area to be watertight or provided with flood panels and openings that are potential leak baths to be sealed." (NRC Inspection Report, 50-289/98-08.) Less than a month later, on July 2, 1998, an LER was necessary due to the breaching of flood barriers "between the turbine building and the control building area due to inadequate fieldwork documents."

As recently as January 9 and 19, 1999, elevated tritium levels and potential leaks from the waste evaporator condensate storage tank for the months of January, February and March 1999 were reported.

Based on the above documented water quality problems the staff should revisit the rating of "water quality." **(CL-02/49)**

Response: *Table 1-1 of this Supplement lists activities at facilities that have been permanently shutdown by a major accident as out of scope. In addition, the problems discussed by these comments are not relevant to a generic assessment. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: The water quality (Section 4.3.3) discussion does not address the potential impact of dewatering on the quality of ground water. If, for example, the ground water is a source of potable water and the facility is located near an ocean, dewatering could impact the quality (salinity) of the potable water. The NRC should revise the Supplement to clarify that the NRC will rely on the licensee's compliance with the NPDES permit for dewatering to conclude that the impact is SMALL. **(CL-01/4)**

Response: *Groundwater withdrawal, such as dewatering, is regulated by the state and not through the NPDES Permit. Furthermore, any groundwater dewatering required during decommissioning would be temporary and experience to date has revealed that it is minimal in volume and impact. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Discharges should never have been allowed without prior cleanup and should not be now. **(CL-20/29)**

Response: *The staff agrees with the comment. Discharges are only permitted within regulatory limits. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Additionally, a thorough analysis of groundwater impacts seems lacking. Given Georgia's current concern over the Floridian aquifer, it is again hard to believe that something fundamental to life, water, is being analyzed generically. **(AT-A/36)**

Comment: Additionally, a thorough analysis of groundwater impacts seems lacking. Given Georgia's current concern over the Floridan aquifer, we request that a site-specific assessment of groundwater quality be conducted prior to decommissioning. Also, we request that a more thorough analysis of groundwater issues be researched prior to issuing the final EIS. As an example, the NRC should request the most recent data from State agencies, such as the Georgia Environmental Protection Division, that are involved in negotiations regarding "water wars" between states—as in the ongoing dispute facing Georgia, Florida, and Alabama. **(CL-08/19)**

Response: *The use of groundwater is reduced significantly once the plant permanently ceases operation and is not expected to detectably change or destabilize the aquifer at any NRC licensed site. Therefore, the staff concludes that the impact to groundwater for decommissioning is SMALL and no further mitigation is required. NRC uses groundwater data from States and other agencies where NRC licensed facilities are sited to determine if changes in groundwater use at decommissioning sites are detectable or its use might destabilize groundwater sources. Furthermore, during the review of the LTP, the licensee has to demonstrate, on a site-specific basis, that operation and decommissioning of the facility has not revealed groundwater contamination in excess of the regulatory limits. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: Page 1-7, Section 1.3, Lines 30-33. The document needs to explain the grounds for the determination that the environmental impacts of concrete leaching into site groundwater as the result of rubblization can be evaluated generically. See also groundwater comments below. **(CL-16/13)**

Comment: THIS GROUNDWATER CONTAMINATION ISSUE IS ANOTHER REASON WHY "RUBBLIZATION" MUST BE FORBIDDEN, THE CONTAMINATION IN WHAT THEY WANT TO RUBBLIZE AND BURY WILL LEACH TO THE GROUNDWATER AND DIRECTLY IRRADIATE SOIL AND MICROORGANISMS. **(CL-20/19)**

Comment: Would a leachate collection system be required where the rubble is stored in order

to monitor for potential impacts on the groundwater? **(CL-51/15)**

Response: *The staff has determined that long term radiological aspects of rubblization, or onsite disposal of slightly contaminated material would require a site-specific analysis and would be addressed at the time the license termination plan is submitted. The nonradiological impacts would be nondetectable (see Section 4.3.3.3). They are considered to be generic for all sites. The NRC has neither considered or approved rubblization for any plant nor provided guidance on rubblization methods or practices including the requirement for a leachate collection system. This Supplement evaluates potential environmental impacts of decommissioning. It does not set requirements for decommissioning activities or methods. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: Groundwater is used by countless communities, groundwater is eventually released to surface and other water bodies and, as groundwater onsite is usually radioactively contaminated, it is a SERIOUS issue that MUST be dealt with, groundwater that is contaminated MUST be pumped out etc. **(CL-20/18)**

Response: *Groundwater in the vicinity of the facility is monitored during operation and decommissioning. Any mitigation of groundwater contamination will be evaluated at the time of the license termination plan review. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: As all landfills leak, it will go to the groundwater and migrate offsite. **(CL-20/76)**

Comment: Furthermore, the way the environmental and water issues were looked at during the time of plant licensing were often equally awful. It all needs reconsidering. **(CL-20/15)**

Response: *The comments can not be evaluated because they did not provide specific information. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

O.1.3 Air Quality

Comment: 4.3.4 Air Quality, (4.2.4.2) pg. 4-14, last para., last full sentence: This statement indicates that in most cases the number of shipments of other materials (non-radioactive materials) will be small compared to those for LLW. This is not necessarily the case for a plant which is removing all above grade facilities. However, this fact should not affect the conclusion that the air quality related environmental impacts for these activities will be small. **(CL-04/3)**

Response: *The statement in the Supplement is correct given sizes and contents of reactor building and other structures required for plant operation. The Supplement only addresses the impacts of the removal of radioactive structures and structures that were required for operation of the plant. It does not include removal of other structures, including training facilities and administration buildings. Table 1-1 provides a list of areas that were not considered within the scope of the Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Section 4.3.4.2, p 4-14, 2nd paragraph - not all decommissioning sites have or will have building ventilation systems, especially those that are in SAFSTOR for many years. Temporary systems will be established, as needed, for gaseous effluents during decommissioning if installed systems are no longer functional. Monitoring of air quality is not necessarily performed during the storage period, depending on activities, storage period and source term. **(CL-05/11)**

Comment: Section 4.3.4.2, p 4-14, lines 11-24 – Not all decommissioning sites have or will have building ventilation systems, especially those are in SAFSTOR for many years. Temporary systems will be established, as needed, for gaseous and particulate effluents during decommissioning if installed systems are no longer functional. **(CL-09/19)**

Comment: Monitoring of air quality is not necessarily performed during the storage period, depending on activities, storage period and source term **(CL-09/20)**

Comment: Page 4-14, Section 4.3.4.2, Lines 10-24. The Supplement states that most decommissioning activities are conducted in facility buildings with systems that are "typically maintained and periodically operated" during decommissioning to minimize airborne contamination. As a result, "materials released when systems are dismantled and equipment is removed are not likely to be released to the environment in significant quantities." Again, does the reader assume that a licensee must perform a site-specific analysis of potential air quality impacts if a certain level (definition?) of decommissioning activity may or will not be conducted in facility buildings, or if the systems used to minimize airborne contamination may or will not be maintained and/or operated according to a certain level of effort? How is "significant quantity" defined? **(CL-16/40)**

Response: *Section 4.3.4.2 was revised to address the above comments and to provide a better explanation of the process and terminology. The staff has determined that potential air quality impacts are SMALL and generic and no site-specific analysis is needed.*

Comment: Section 4.3.4.3, p 4-15 – other activities during decommissioning could result in release of particulate matter. This includes temporary suspension of particles during cutting activities and production of particulates from processing of sodium and NaK at an FBR. Such particulate matter is filtered, as necessary, prior to release, to avoid or minimize adverse air quality impacts. While this is recognized on p 4-14, it should also be included in the section on "Results of Evaluation." **(CL-09/21)**

Response: *Section 4.3.4.3 was revised to address this comment.*

Comment: Section 4.3.4.4, p 4-16, line 11 – add the following sentence to the end of the paragraph: "Particulates produced by decommissioning activities within buildings will be filtered as needed so that air quality impacts will be minimal **(CL-09/22)**

Response: *Section 4.3.4.4 was revised to address this comment*

Comment: Page 4-14, Section 4.3.4.2, Lines 6-8. The Supplement states that emissions from workers' vehicles "should be lower" during decommissioning than during plant construction or outages and are "usually lower" than during plant operation. Is there any data from decommissioned plants to support these statements? Also, does one assume that a site-specific analysis of potential air quality impacts is required if such emissions may or will be higher than during plant construction, outages or operation? **(CL-16/39)**

Response: *Assuming that the mix of vehicles driven by the decommissioning work force is the same as the mix of vehicles driven by the onsite work force during plant construction and operation, the staff concludes that total emissions from all workers' vehicles should decrease due to the decrease in the work force following cessation of plant operations, and should not be a problem during decommissioning of any plant. Section 4.3.4 was changed to address this comment.*

Comment: Page 4-14, Section 4.3.4.2, Lines 26-33. The Supplement states that fugitive dust emissions during movement of equipment outside of facility buildings are "likely ... to be confined to the immediate vicinity of the equipment," "in general ... limited to a small number of events" and "of relatively short duration." Again, is the reader to assume that a licensee must perform a site-specific analysis of potential air quality impacts where one of these conditions is not met? Also, how are "immediate", "small number of events" and "relatively short duration" defined? Further, must the facility employ mitigation measures to minimize dust; if so, where are these specified? **(CL-16/41)**

Comment: Page 4-14, Section 4.3.4.2, Lines 40-43 and Page 4-15, Section 4.3.4.2, Lines 1-2.

The Supplement states that there is an average of less than one shipment per day of low-level waste (LLW) from a decommissioning plant; that, "in most cases, the number of shipments of other materials to and from a decommissioning facility will be less than that for LLW;" and that therefore emissions associated with the transportation of materials from such a plant "are not expected to have a significant impact on air quality." Again, is the reader to assume that a licensee must perform a site-specific analysis of potential air quality impacts if the number of shipments of materials to or from its decommissioning facility will exceed the level of less than one shipment per day? **(CL-16/42)**

Response: *Section 4.3.4 was revised to address the above comments and to provide a better explanation of the process and the terminology. The experience to date at plants undergoing decommissioning has not resulted in air quality issues related to fugitive dust. Furthermore, the licensee must evaluate impacts resulting from decommissioning activities against previously issued environment assessments (10 CFR 50.82 (a)(b)(ii). If the evaluation determines that the impacts are greater that previously assessed then the impact is outside the envelope established by this GEIS.*

Comment: Page 4-15, Section 4.3.4.2, Lines 4-7. The definition of what constitutes SMALL, MODERATE and LARGE air quality impacts would be helped by providing specific examples from decommissioning or decommissioned facilities. **(CL-16/43)**

Response: *Section 4.3.4 was revised to address this comment. The criteria for defining destabilization and detectibility was clarified in Section 4.3.4.2.*

Comment: Page 4-15, Section 4.3.4.3, Lines 21-23. This section states that "[n]o anticipated new methods of conducting decommissioning and no peculiarities of operating plant sites are anticipated to affect this pattern" of managing fugitive dust. Is the reader to assume that a licensee who proposes using a new decommissioning method must perform a site-specific analysis of potential impacts? **(CL-16/44)**

Response: *The staff expects licensees to continue to use dust control measures appropriate for the activity being performed and the site. The staff assumes that if a new method of decommissioning is contemplated by a licensee then the licensee would evaluate the impact of the new methodology on all the environmental issues including fugitive dust. If the evaluation concludes that the amount of fugitive dust released by the new activity is significantly greater than what would be expected using the current technology and the impact would not be SMALL, then the licensee would be outside the envelope of impacts given in this Supplement. The comment did not provide new information relevant to the supplement and will not be evaluated further. The comment did not result in a change to the supplement.*

Comment: Air quality issues, Page 4-12, etc., do not address the fact the HEPA filters are

about as good as useless for radioactive particulate holdup and sand filters should be added as well. **(CL-20/31)**

Response: *Well established technology exists for filtering airborne radionuclides. Airborne releases are required to be within regulatory limits given in 10 CFR Part 20. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: On Page 4-16 the NUREG concludes (Section 4.3.4.4) the environmental impact of air emissions will be small. In the evaluation they did not consider that many sites use extraction steam to provide plant heat in the winter months. The shutdown of the reactor means that Aux Boilers will be operated for longer periods to provide heating steam. This needs to be considered in the NUREG or many facilities will need to address this issue in the PSDAR. **(CL-31/9)**

Response: *The staff has concluded that impacts on air quality, including the increased use of auxiliary boilers for heating, could be evaluated generically and is considered to be SMALL and will not require a site-specific analysis. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: This is of special significance if explosives are to be used for demolition, which will generate radioactive fugitive dust. **(CL-51/9)**

Response: *Control measures will be required during demolition to keep releases, including those associated with fugitive dust, within regulatory limits regardless of the methods used during demolition. The NRC license will not be terminated until the residual radioactivity at the site is below regulatory limits. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: (4.3.1.4) ENVIRONMENTAL IMPACTS of DECOMMISSIONING PERMANENTLY SHUTDOWN NUCLEAR POWER REACTORS;

Air Quality - Conclusions:

"Fugitive dust from those activities performed outside of the building is temporary, can be controlled mitigative measures, and will generally not be noticeable off site." Once again the experience of TMI-2 is instructive:

In June-July, 1980, for 11 days, Met Ed vented 43,000 curies of radioactive Krypton-85

(10-year half-life; beta and gamma) and other radioactive gasses into the environment without having scrubbers in place. Yet in November 1980, the U.S. Court of Appeals for the District of Columbia ruled that the krypton venting was illegal.

From July 24-27, 1984, during the reactor head lift, which was delayed to brake failure on the polar crane, GPU vented radioactive gasses into the environment.

On September 25, 1989, two cleanup workers received radiation exposures while handling a "small piece of reactor core debris" in the decontamination area.

After ten years of defueling activities, 5,000 TMI workers had received "measurable doses" of radiation exposure. The NRC staff should reconsider the placement and value of the terms "temporary" and "fugitive", and rethink the adverse affects of "air quality" on workers. **(CL-02/50)**

Response: *Table 1-1 of this Supplement lists activities at facilities that have been permanently shutdown by a major accident as being out of scope. Venting of radioactive gas related to a serious accident or accidental handling of core debris are activities that would not occur at a facility that is undergoing decommissioning. The term "fugitive dust" refers to particles that are resuspended from surfaces, such as the ground as a result of wind or mechanical action. The term does not imply contamination. Construction activities of any sort have the potential to impact air quality by releasing fugitive dust. As a result, mitigation measures have been developed and are routinely used to control fugitive dust at construction sites. When used properly, fugitive dust mitigation measures are effective. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

O.1.4 Ecology

Comment: Section 4.3.5, Page 4-19, 1st paragraph - This conclusion would result in site-specific analyses for the use of areas beyond the previously disturbed areas if a potential to impact the aquatic environment exists. The vagueness of the condition "potential to impact" could result in a site-specific analysis for any potential no matter how remotely possible. The NRC should consider rewording the condition to say 'there is expected to be or likely to be an impact" Also on the previous page (Page 4-18 last paragraph in Section 4.3.5.2,) it appears that a site-specific assessment would be required merely if the aquatic environment has not been characterized. NRC should clarify that a site-specific EIS is not necessary just because the lack aquatic environment characterization, but rather, if an area beyond the previously disturbed area is to be used and no associated characterization of the aquatic environment, if applicable, exists, then such a characterization should be conducted. Then as stated above, if there is expected to be or likely to be an impact to the aquatic environment, then a site-specific

analysis should be conducted. **(CL-05/14)**

Comment: Section 4.3.6, p. 4-23, last paragraph - This section should be reworded as in section 4.3.5.4, as modified by the comment above. **(CL-05/15)**

Comment: 4.3.5 Aquatic Ecology (4.3.5.4) pg. 4-19, 1st para., last sentence. This conclusion would result in site-specific analyses for the use of areas beyond the previously disturbed areas if there is a potential to impact the aquatic environment. The vagueness of the condition "potential to impact" could result in a site-specific analysis for any potential no matter how remotely possible. The NRC should consider rewording the condition to say "there is expected to be or likely to be an impact." Also on the previous page (pg. 4-18 last para. in Section 4.3.5.2,) it appears that a site-specific assessment would be required merely if the aquatic environment has not been characterized. NRC should clarify that a site-specific EIS is not necessary just because the lack of environment characterization, but rather, if an area beyond the previously disturbed area is to be used and no associated characterization of the aquatic environment, if applicable, exists, then such a characterization should be conducted. Then, as stated above, if there is expected to be or likely to be an impact to the aquatic environment, then a site-specific analysis should be conducted. **(CL-04/4)**

Comment: 4.3.6 Terrestrial Ecology (4.3.6.4), pg. 4-23, last para. in Section 4.3.6.4, last sentence. This should be reworded to be the same as Section 4.3.5.4 as modified in the comment above. **(CL-04/5)**

Comment: Page 4-17, Section 4.3.5.2, Line 38 and page 4-18, Section 4.3.5.2, Lines 4 and 14. The term "previously disturbed" needs definition. **(CL-16/46)**

Comment: Page 4-18, Section 4.3.5.2, Lines 14-17. The Supplement should provide specific guidance on how to weigh the primary factors to be considered in evaluating the adverse impacts of decommissioning activities in "previously disturbed" areas. How much habitat can be disturbed before a site-specific analysis is required? How much time can have passed since the initial disturbance? How is a licensee to evaluate the successional patterns of the aquatic communities? **(CL-16/47)**

Comment: Page 4-21, Section 4.3.6.2, Lines 15-17. The Supplement should provide specific guidance on how to weigh the primary factors to be considered in evaluating the adverse impacts of decommissioning activities in "previously disturbed" areas. How much habitat can be disturbed before a site-specific analysis is required? How much time can have passed since the initial disturbance? How is a licensee to evaluate the successional patterns of the native communities? **(CL-16/53)**

Comment: Page 4-19, Section 4.3.5.4, Lines 4-6. This subsection appears to define a "previously disturbed area" as "within the security fences or surrounding paved, graveled, or otherwise developed areas without removal of near-shore or in-water structures." Does this definition also apply to land use activities on page 4-6, Section 4.3.1.2, Lines 15-16? Does the definition mean that a licensee who plans to remove near-shore or in-water structures in "previously disturbed areas" must perform a site-specific analysis of the potential aquatic ecology impacts? **(CL-16/49)**

Comment: Page 4-19, Section 4.3.5.2, Lines 8-11. How is "previous" defined? What is the relationship between these "previous ecological surveys that indicate a low probability of adversely affecting ecological resources" and the aquatic environment characterizations referred to on Page 4-18, Lines 17-23? This subsection suggests that the aquatic ecology impacts of decommissioning activities conducted in areas that were not "previously disturbed" will be SMALL if a previous survey has demonstrated a low probability of adverse effects on the ecosystem, while Section 4.3.4.2 suggests that the aquatic ecology impacts of decommissioning activities in such areas will be SMALL if a characterization has demonstrated the possibility of some adverse effects to "sensitive resources," but the facility will manage those resources for their protection during decommissioning activities. **(CL-16/50)**

Comment: Page 4-19, Section 4.3.5.2, Lines 11-16. The Supplement should define more precisely the circumstances under which a site-specific analysis of potential aquatic ecology impacts in previously undisturbed areas is required. How is the licensee to determine whether an activity has the potential to impact the environment? How should the magnitude of potential impacts be determined? Also, can a licensee avoid doing a site-specific analysis by implementing a protection plan to protect the aquatic environment? **(CL-16/51)**

Comment: Page 4-21, Section 4.3.6.2, Lines 1, 15 and 24. The term "previously disturbed" should be defined or examples provided. **(CL-16/52)**

Comment: Page 4-22, Section 4.3.6.2, Line 43 and Page 4-23, Section 4.3.6.2, Lines 1-5. The Supplement should better define or provide examples of circumstances under which a site-specific analysis of potential terrestrial ecology impacts in previously undisturbed areas is required. What constitutes a "potential of adverse impact to important terrestrial resources"? What is an "important" terrestrial resource? The document should provide criteria by which a licensee can determine whether an activity has this "potential," as opposed to merely a "low probability of adversely affecting ecological resources." The Supplement should also clarify whether a licensee can avoid doing a site-specific analysis by implementing a protection plan to protect the terrestrial environment. **(CL-16/60)**

Comment: Page 4-21, Section 4.3.6.2, Lines 25-29. The document states that the potential impact of disturbing areas beyond the original construction area is SMALL and can be characterized generically if "the terrestrial environment has been characterized." Moreover, a site-specific analysis is needed if "decommissioning activities occur in terrestrial environments that have not been characterized." What must this characterization consist of, and when/how recently must it have been performed, to allow a licensee to conclude that it is sufficient and can properly support the conclusion that potential impacts are SMALL? **(CL-16/55)**

Comment: Page 4-22, Section 4.3.6.4, Lines 37-39. This subsection appears to define a "previously disturbed area" as "within the security fences or surrounding paved, graveled, or otherwise developed areas." How does this definition relate to the definition provided on Page 4-6, Section 4.3.1.2, lines 15-16? **(CL-16/58)**

Comment: Page 4-22, Section 4.3.6.4, Lines 40-43. This subsection suggests that the terrestrial ecology impacts of decommissioning activities conducted in areas that were not previously disturbed will be SMALL if a "previous" survey has demonstrated a low probability of adverse effects on the ecosystem. How recent must the "previous" survey have been? **(CL-16/59)**

Comment: My question is with regard to the site-specific issues. One of the site-specific issues is threatened, I'm sorry, aquatic and terrestrial ecology. And it says, the rationale, activities occurring beyond previously disturbed areas. And I'm wondering what the definition of a previously disturbed area is. Is there a time frame, or how that is defined? **(CH-B/1)**

Response: *Section 4.3.5 Aquatic Ecology, and Section 4.3.6, Terrestrial Ecology, have been extensively revised to address the above comments and the concept of "previously disturbed land" no longer is the criteria for initiating a site-specific analysis. The concept of relying on a previous ecological survey and an environment protection plan to determine whether a site-specific analysis is needed has also been eliminated.*

Comment: 4.3.5 Aquatic Ecology (4.3.5.2) pg. 4-17, 1st para. in Section 4.3.5.2, 4th sentence, "Aquatic environment s" should be corrected. **(CL-04/18)**

Response: *Section 4.3.5.2 was changed to eliminate the typographical error.*

Comment: Page 4-16, Section 4.3.5, Lines 25-29. This section's discussion of impacts to aquatic resources following plant shutdown seems to contradict the example given on page 1-5, lines 6-7, of plant discharges post-shutdown being outside the scope of this document. Similarly, the discussion at Page 4-19, Section 4.3.6, Lines 26-29 seems to contradict page 1-5.

Note also the comment above on the page 1-5 language. **(CL-16/45)**

Response: *Section 4.3.5 was changed to eliminate the contradiction.*

Comment: Page 4-18, Section 4.3.5.2, Lines 17-23. The Supplement states that the potential impact of disturbing areas beyond the original construction area is SMALL and can be characterized generically if "the aquatic environment has been characterized," and that a site-specific analysis is needed if "decommissioning activities occur in aquatic environments have not been characterized." What must this characterization consist of, and when and how recently must it have been performed, to allow a licensee to conclude that it is sufficient and can properly support the conclusion that potential impacts are SMALL? **(CL-16/48)**

Response: *Section 4.3.5, Aquatic Ecology, has been revised to eliminate the use of an environmental characterization to determine whether a site-specific analysis needs to be performed.*

Comment: Page 4-21, Section 4.3.6.2, Lines 23-25. What is a "significant" terrestrial resource? What does "potentially" affected mean? These terms need to be defined or examples provided so that licensees understand when they are required to perform a site-specific analysis. **(CL-16/54)**

Response: *Section 4.3.6.2 has been extensively revised and the phrase "significant terrestial resource" is not used in this section in the Final Supplement. The comment is no longer relevant. The comment did not provide new information relevant to this supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Pages 4-21 to 4-22, Section 4.3.6.3. The document assumes that "[i]n most cases, the amount of land required to support the decommissioning process is relatively small and is normally a very small portion of the overall plant site." It also states that "licensees typically anticipate utilizing an area of between 0.4 ha (1 ac) to approximately 10.5 ha (26 ac) to support the decommissioning process." EPA assumes this means that a licensee must perform a site-specific analysis of impacts if the terrestrial ecology impacts of decommissioning activities may or will be greater than 10.5 ha (26 ac). If this assumption is incorrect, when is a site-specific analysis required and why? **(CL-16/56)**

Response: *The estimates of the typical area used to support decommissioning are based on the decommissioning experience to date. They are not criteria. The licensee must evaluate impacts resulting from decommissioning activities against previously issued environmental assessments (10 CFR 50.82(a)(b)(ii)). If the evaluation determines that the impacts are greater than previously assessed then the impact is not SMALL and the impact is outside the envelope*

established by this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: Page 4-22, Section 4.3.6.3, Lines 27-29. The document assumes that the "activity of rubblization of construction material should not have significant nonradiological impacts beyond other decommissioning activities except for potential short-term noise and dust effects." However, on Page 4-12, the document states that rubblization may affect groundwater pH and thereby "affect the transport properties of radioactive and nonradioactive chemicals in the subsurface." Any radioactive or nonradioactive chemicals in the subsurface that are mobilized as a result of concrete leaching from rubblized material could have an adverse effect on the terrestrial ecology of a facility. For this reason, EPA recommends that the Supplement require a site-specific analysis of all of the potential environmental impacts of rubblization, both nonradiological and radiological. **(CL-16/57)**

Response: *The staff, based on the available literature and experience has determined that the impacts associated with concrete leaching from subsurface burial of uncontaminated demolition debris are SMALL, localized and can be evaluated generically. Evaluation of the long-term radiological aspects of rubblization (or onsite disposal of slightly contaminated material) would require a site specific analysis and would be addressed at the time the LTP is submitted. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: (4.3.6.4) ENVIRONMENTAL IMPACTS of DECOMMISSIONING PERMANENTLY SHUTDOWN NUCLEAR POWER REACTORS: Conclusion - Terrestrial Ecological Resources: The NRC staff aptly stated,"...the magnitude, (i.e., SMALL, MODERATE, LARGE) of potential impacts will be determined through a site-specific study ..." These flexible barometers should be applied to all the above mentioned Conclusions. **(CL-02/53)**

Response: *The NRC established an envelope of environmental impacts resulting from decommissioning activities, identified those activities that can be bounded by a generic evaluation, and identified those that require a site-specific analysis. The NRC concentrated the environmental analysis on those activities with the greatest likelihood of having an environmental impact. The staff determined for onsite terrestrial issues, that the impacts of decommissioning activities are SMALL and the analysis need not be site-specific analysis. For those impacts that have been determined to be generic, a licensee is required to evaluate impacts resulting from decommissioning activities against this Supplement or previously issued environmental assessments (10 CFR 50.82 (a)(6)(ii). If the evaluation determines that the impacts are greater than previously assessed, then a site-specific analysis is required. The comment did not provide new information relevant to this Supplement and will not be evaluated*

further. The comment did not result in a change to the Supplement.

Comment: Regarding aquatic ecology p.4-16, as touched on earlier, the environmental impact statements originally written for the plants were often very poor, and did not mention that the discharge water would be radioactively contaminated nor that sediment would be contaminated for miles etc. **(CL-20/36)**

Response: *The original Environmental Impact Statements for power reactors acknowledged that there would be routine releases of radionuclides to the aquatic environment that would be controlled to meet regulatory requirements. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Other aquatic environmental impacts also merit site-specific review. **(CL-11/5)**

Response: *The comment can not be evaluated because it did not provide specific information. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: (4.3.5.2) ENVIRONMENTAL IMPACTS OF DECOMMISSIONING PERMANENTLY SHUTDOWN NUCLEAR POWER REACTORS; Aquatic Ecological Resources- Conclusions: The staff found that"....the impact to aquatic ecology for all decommissioning activities is generic and that the environmental impact for these activities is SMALL." Unfortunately, the staff biologists are unfamiliar with the unique water chemistry of the Susquehanna River and historic infestations that have afflicted Three Mile Island. In February 1986, one celled organisms believed to be fungus, bacteria and algae-like creatures were discovered. These creatures obscured the view of the reactor core. And impeded the cleanup of Three Mile Island-2.

On June 23, 1999, Three Mile Island, trying to rid itself of clams, recently released too much of a potentially hazardous chemical into the Susquehanna River. State regulations allow TMI to release 0.3 parts per million of Clamtrol back into the Susquehanna River. For about an hour, the plant was releasing 10,500 gallons per minute containing twice the amount. **(CL-02/51)**

Response: *Table 1-1 of this Supplement lists activities at facilities that have been permanently shutdown by a major accident as out of scope. The microorganisms discussed in the comment were found inside the reactor vessel, and were not a result of an impact on the Susquehanna*

River. The operating unit, TMI-1, rather than TMI-2 was involved in the release of Clamtrol to control clams. Discharge of chemicals to control molluscs occurs at operating facilities and is regulated by the NPDES permit issued by the state or EPA. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: It is a proven fact - proven by the old Atomic Energy Commission and its contractors, - that migratory birds become contaminated eating seeds, drinking water and so on at radioactively contaminated sites, wetlands areas etc. and the birds carry this contamination in their bodies worldwide. NRC, DOE and licensees violate the MBT by not protecting birds from such contamination, and by spewing radioactive noble gases out that impact passing birds. This is one of the reasons I suggest that netting or similar should be placed over the sites in question, fine wire mesh set at an angle that can have leaves and other debris hosed off it, it must be small enough to keep birds out down to the size of hummingbirds. Enclosed, such an obscene site poses slightly less of a threat to birds and other wildlife, the utilities can pay for it all, it can come out the salaries of the top management and company owners. And on the endangered bird subject, let me address the Migratory Bird Treaty Act of 1918 - (p.4-20). **(CL-20/40)**

Response: *Licensees are required to take measures necessary to control the spread of contamination through the animal pathway. Studies to date have not shown that the spread of contamination by this route is in any way significant, but rather is very minor. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: (4.3.1.4) ENVIRONMENTAL IMPACTS of DECOMMISSIONING PERMANENTLY SHUTDOWN NUCLEAR POWER REACTORS; On site/Off site Land Use - Conclusions:

The GEIS stated, "It is rare for decommissioning activities to affect off-site land use ..." This statement fails to recognize that most nuclear generating stations are located in close proximity to substantial water resources. The Susquehanna Steam Electric Station, Three Mile Island and Peach Bottom are located on or adjacent to the Susquehanna River which feeds the most productive estuary in America, i.e., the Chesapeake Bay. **(CL-02/45)**

Response: *Table F-2 identifies each of the licensed nuclear power plants and the cooling water source. The comment cannot be evaluated because it did not provide specific information. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The Draft GEIS does not adequately consider the effects on aquatic ecology caused by an accidental, radioactive release. **(CL-11/4)**

Comment: NRC saying that it has not established standards to biota other than humans on the basis that limits established (by the aforementioned) for the public would provide adequate protection for other species is outrageous and contrary to what has been established for decades. **(CL-20/9)**

Comment: When thinking about exposure to plants and animals and fish, one needs to take the effects to an infant and to a child in the womb to better approximate the effects to wildlife, the smaller the non-human entity (e.g. a bird, a frog) the child in utero down to embryonic level would be appropriate. We all know what happens when an embryo is exposed - namely death or severe damage. The same happens to birds eggs. **(CL-20/10)**

Response: *The NRC established standards for radiological exposures to humans on the basis that limits established for the exposed members of the public would provide adequate protection for other species. No standards were established for radiological exposure to biota other than humans. The validity of the assumption that radiation guidelines, which are protective of the public, would also provide adequate protection to plants and animals has been upheld by national and international bodies that have examined the issue, including the National Council on Radiation Protection and Measurement (NCRP Report No. 109, Effects of Ionizing Radiation on Aquatic Organisms, 1991) and the International Atomic Energy Agency (IAEA Technical Report Series No. 332, Effects of Ionizing Radiation on Plants and Animals at Levels Implied by Current Radiation Protection Standards, 1992). Both of those studies were conducted in part to evaluate the original assumption presented in 1977 by the International Commission on Radiological Protection (ICRP Publication 26, 1977). In all of these cases, it has been emphasized that such radiation levels may adversely affect non-human species, but effects at the population level are not detectable. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: Removal of intake/outfall structures may be the most beneficial action to the aquatic ecology, but it should not go forward without site-specific study of the environmental impacts. **(CL-11/8)**

Response: *The removal of the intake/outfall structures and other SSCs after operation of the facility is discontinued is not expected to detectably change or destabilize the aquatic environment. The removal process is expected to be conducted in a manner and at a time that will have minimal impact to the aquatic environment. In addition, it is anticipated that best management practices would be employed and the necessary permits obtained. All impacts would be, at most, a short-term impact. Therefore, the staff concluded that the impact to the aquatic environment for these decommissioning activities is SMALL and no further mitigation is required. The comment did not provide new information relevant to this Supplement and will*

not be evaluated further. The comment did not result in a change to the Supplement.

Comment: The aquatic ecology issue should also be site-specific **(CL-20/38)**

Response: *The analysis in the Supplement shows that the impacts on aquatic ecology will not be detectable. Therefore, the staff concluded that the impact to the aquatic environmental to these decommissioning activities is SMALL. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

O.1.5 Threatened and Endangered Species

Comment: 4.3.7 Threatened and Endangered Species (4.3.7.4), pg. 4-25, last para., last sentence. This conclusion indicates that the NRC will meet its responsibilities on a site-specific basis during any decommissioning process, but it does not specify how the NRC will meet its responsibilities or what information it will need from licensees. **(CL-04/6)**

Response: *The responsibilities under ESA will be met through interactions among the licensee, the NRC, and the appropriate resource agency either the U.S. Fish and Wildlife Service (FWS) or the National Marine Fisheries Service (NMFS). Information required of the licensee will likely depend on the activity and the species potentially present. This process is described in Section 1.5. The staff has determined that it will conduct informal consultations after the licensee announces permanent cessation of operations. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Page 4-23, Section 4.3.7, Lines 10-12. The supplement should elaborate on the basis for the statement that "the potential impacts of nuclear power facility decommissioning efforts on threatened or endangered species will normally be no greater and likely less than the effects of plant operations." **(CL-16/61)**

Response: *There are one or more threatened and endangered species in the general vicinity of virtually all licensed commercial nuclear facilities. Very few of these facilities have had documented adverse impacts on the local threatened and endangered species, and in those rare instances when there is an effect, the species that are affected are almost all aquatic species. An operating reactor can affect threatened or endangered aquatic species via water intake through the cooling system resulting in impingement or entrainment, through the heated discharge from the cooling system, or through the purposeful or inadvertent addition of chemicals or contaminants to the cooling water stream. When the plant is shut down for decommissioning the reactor cooling system is shut down, and therefore the impact on aquatic environment is much lower than the impacts of an operating reactor. Therefore, the potential*

effects on the threatened and endangered species will likely be less during decommissioning than during operations. For terrestrial species, the most common potential impacts from operating plants are due to transmission line rights-of-way maintenance activities. Most transmission lines (beyond the switchyard) are expected to remain energized even after a commercial nuclear power facility ceases operation and the right-of-way maintenance activities are expected to continue. Therefore, the potential impacts of decommissioning on terrestrial species will normally be no greater than the potential impacts of plant operation. Section 4.3.7 was revised.

Comment: Page 4-25, Section 4.3.7.2, Lines 3-7. The Supplement should provide guidance on determining the amount of habitat that can be disturbed beyond previously disturbed areas. **(CL-16/62)**

Response: *The evaluation of impacts on threatened and endangered species will be conducted on a site-specific basis. Guidance on the amount of habitat disturbed is irrelevant. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

O.1.6 Radiological

Comment: Section 3.1.4 Formation and Location of Radioactive Contamination and Activation in an Operating Plant, pg. 3-15. This description should include the activation of corrosion products as a contributor to radioactive contamination. **(CL-04/16)**

Response: *Radioactive corrosion products are the result of activation and can be considered activation products. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Section 3.1.4, Pg 3-15, last paragraph - clarify whether the last sentence is referring to radiation exposure during decommissioning or operation. In context, the inference is that the activation products provide the main source of radiation exposure to plant personnel in an operating plant, but typically contaminated materials provide more exposure to plant personnel during operation. **(CL-05/8)**

Response: *The sentence refers to the decommissioning process. Section 3.1.4 was revised for clarification.*

Comment: It also is not clear how, why, and how many plants were selected for Tables G-11 and G-12. Additionally, the first sentence of the fourth paragraph should indicate that the data

is estimated worker dose for major types of decommissioning activities. Actual data appeared to be listed for only one plant in the tables. **(CL-09/41)**

Comment: Section G.2.2, p G-21 – while the conclusion appears correct, it is strange that information was only available for a small sample of facilities. This data is reported to the NRC annually by licensees. **(CL-09/45)**

Comment: Table G-15 – the basis of this table should be better explained. How were the plants selected? What years are covered? **(CL-09/46)**

Comment: Table G-16 – how were the plants listed in this table selected? It appears to be a strange non-representative sample. **(CL-09/47)**

Response: *Data were used to be representative of operating plants around the country including an operating BWR and two PWRs, two different vendors, and two different location types (coastal and interior). Two shutdown power reactor facilities were also included. Data on permanently shutdown plants were used as provided by the licensee or found in references. Tables G-11 and G-12 have been revised.*

Comment: In Appendix G, I was very surprised to read of excess malignancies that have been experienced at doses of 10 REM. This is contrary to the health physics and radiological health handbook and other material that I've read over the more than 25 years I've spent in this industry. And I think that needs to be addressed and reevaluated. **(CH-D/11)**

Response: *The statement made in Appendix G related to the health effects of doses of approximately 10 rem is correct and is taken from the BEIR V report. However, the commentor's statement that the excess malignancies were "experienced" is incorrect. They were calculated based on the extrapolation of an assumed linear relationship between dose and malignancies. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 4.3.8 Radiological (4.3.8.3), pg. 4-29, 4th full para. last sentence. Maine Yankee agrees that it is not necessary to update the estimates for exposure found in the 1988 GEIS. **(CL-04/7)**

Response: *The staff agrees with this comment. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Section 3.1.4, page 3-15, does not reflect that alpha-emitting Transuranic radioactivity is significant at some plants. This radioactivity is formed after failed fuel releases small amounts of Uranium (as well as fission products) to the reactor coolant. Subsequent activation of the Uranium results in the formation of Transuranic isotopes of Plutonium, Americium and Curium, most of which decay with alpha radiations. For the plants where this issue is significant, the production of airborne alpha radioactivity during decommissioning activities must be carefully controlled to avoid radiation exposure from inhaled alpha radioactivity. **(CL-15/6)**

Response: *The NRC staff acknowledge that failed fuel can result in alpha contamination within the facility. However, the standards for protection of workers found in 10 CFR Part 20, "Standards for Protection Against Radiation" provide adequate protection for workers. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Page 3-16, Section 3.1.4, Line 1. This line notes that spent fuel comprises the largest amount of radioactive material at a shutdown facility. It would be informative to include here a summary of or reference to the data in Appendix G on the amount of radioactive material at various types of power plants. **(CL-16/20)**

Response: *The amount of radioactive material varies between facilities and is dependent on factors such as the type of facility, the size of the facility, the length of time the facility is operated and other variables. Because of the number of factors affecting the amount of radioactive material, the staff does not believe this information will be useful. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: FOR THE NRC TO HAVE USED DATA FOR SOUTHERN COMPANY'S PLANT HATCH IS SICKENING - WHEN HATCH HAD THEIR DISASTROUS SPENT FUEL POOL SPILL, DID ANYONE ADD THE EXTRA DOSES AND CONTAMINATION IN ? THIS IS THE SAME HATCH WITH OVER 1200 WORKER CONTAMINATION EVENTS IN ONE YEAR. **(CL-20/96)**

Response: *The comment cannot be evaluated because it did not provide specific information. The only place in the document where occupational dose information from the Hatch plant was included was in Table G-9, which summarized occupational dose as a total at all light water reactors for a given year. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Pg. G-21, Table G-15, Summary of Effluent Releases Comparison of Operating

Facilities and Decommissioning Facilities. The values associated with the maximum, minimum and average gaseous effluents for the Decommissioning Reactors do not add up. The Fission and Activation Gases for gaseous effluents are incorrectly all the same for the maximum, minimum and average in each category (PWR & BWR). It appears that the minimum category for Decommissioning PWR's is Maine Yankee. If so, the minimum value for Fission and Activation Gasses for gaseous effluents should be "none detected." Making this correction appears to make the table add up assuming a PWR population of two. **(CL-04/12)**

Response: *The average, maximum, and minimum values for this radionuclide category are identical because the licensees of only one reactor of each type reported emissions. Others either did not report or were reported as below detection limits and therefore could not be included in the calculation. A footnote was added to Table G.15 for clarification.*

Comment: Pg. G-22, Table G-16, Summary of Public Doses from Operating and Decommissioning Facilities. This table is not well formatted and difficult to interpret. The table mixes the collective dose in person-rem with the individual dose in mrem. The years of concern are assorted. We suggest that the table be simplified and either further discussed in Section G.2.2. Text or eliminated. The following is Maine Yankee's data on individual public doses from Maine Yankee's effluents for 1998, 1999 & 2000. (chart followed). **(CL-04/13)**

Response: *Table G-16 was deleted and general information was added to the text.*

Comment: In order to ensure that the radiological aspects of this activity are assessed consistently, NEI recommends that standard dose modeling assumptions be documented directly through the Q&A process associated with the NRC guidance consolidation project. **(CL-05/2)**

Response: *Dose modeling assumptions are not within the scope of this Supplement. Information related to dose modeling assumptions, that are currently in NUREG-1727, will be documented with the NRC guidance consolidations project. In addition, and to the extent possible, the results of NEI's quality and assurance effort will also be included in the consolidation project. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Table 4-1 provides estimates of cumulative occupational dose for decommissioning reactors (comparisons of the 1988 GEIS to new estimates compiled for draft Supplement 1). In order to reflect the conclusions of Section 4.3.8, it is recommended that a note be added to Table 4-1 to clarify that these estimates of cumulative occupational dose are generic and are not intended to be site-specific limits. **(CL-06/1)**

Response: *While these are not site-specific limits, this document is providing an envelope that licensees can use in the future to compare impacts from their decommissioning activities. If the licensee is within the values listed for cumulative occupational dose in this Supplement then the impact is expected to be SMALL. As stated in Section 1.5, licensees must make sure they are within the envelope or must perform a site-specific analysis. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: After the meeting in Atlanta, we are increasingly concerned about the safety of the workers that will be involved in decommissioning. Will a more specific analysis of worker effects be dealt with in the final EIS or is there a separate report that will research health impacts? Georgians for Clean Energy requests that all worker exposures that have occurred at nuclear power plants that are currently being decommissioned be made available to the public and listed in the final GEIS. **(CL-08/25)**

Response: *NRC licensees, including permanently shutdown reactors, are required to provide reports as specified in 10 CFR Part 20, Subpart M. These reports are publicly available. The potential health impacts to workers are discussed in Section 4.3.8 and Appendix G of the Supplement. A more specific analysis of worker health impacts will not be provided in Section 4.3.8. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Section G.1.1.4.1, Pg. G-5 – delete or revise fourth bullet. Conditions typically encountered in exposures from normal facility operations result in external dose, rather than internal dose. Internal deposition of particles can occur, but this is less common than external dose. Also, clarify last bullet. **(CL-09/37)**

Response: *Occupational doses are typically from external exposure; however, environmental exposures to members of the public would be a result of an internal dose largely from radionuclide intake. Section G.1.1.4.1 was revised and the last bullet referenced above has been deleted.*

Comment: Section G 1.1.4.3, p G-8, lines 13-22 – this somewhat explains selection of the occupational nominal probability coefficient in Table G-4 for fatal cancers, but does not explain selection of hereditary coefficient. **(CL-09/38)**

Response: *Section G.1.1.4.3 was revised and provides a source for the hereditary coefficient used in Table G-4.*

Comment: Table G-6, p G-11 – the table per its title covers dose limits for an individual member of the public under 10 CFR 20. The ALARA air emission dose constraint listed in the

table is not a 10 CFR 20 limit. **(CL-09/39)**

Response: *Table G-6 was revised and a footnote added stating that the value is not a 10 CFR Part 20 dose limit but is given to ensure consistency with air emission standards for Federal facilities in 40 CFR Part 61.*

Comment: Section G.2.1, Pg. G-13, lines 26-45 – the conclusion in the first sentence of the third paragraph is misleading. The main reason that the occupational doses at reactors undergoing decommissioning are a small fraction of dose accumulated at operating facilities, as shown in Table G-9, is that there are many more operating plants than decommissioning plants. The average for decommissioning plants shown in the table is less than the operating plant, but not only a small fraction. **(CL-09/40)**

Comment: Table G-12, Page G-17 – the two numbers listed for San Onofre should be explained. **(CL-09/42)**

Response: *Table G-12 is revised. The estimate of Bequerel's has been corrected and the extraneous personnel exposure estimate was removed.*

Comment: Table G-14 it appears strange that only 26-34 operating plants were listed as reporting dose from gaseous effluents each year, since all plants are required to report. Also, the selection of the years 1985-1987 appears strange for an update report. **(CL-09/44)**

Response: *The information cited was taken from a published report, and is limited to information contained in that report. More recent information from operating facilities is also included in Appendix G. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Page 3-10, Section 3.1.3, Lines 34-37. The supplement states that "the amount of liquid and gaseous radioactive waste generated is usually lower for decommissioning plants." Must the plant's waste remain within the limits established during operations to be bounded by this GEIS? **(CL-16/18)**

Response: *Liquid and gaseous waste releases must meet the requirements in 10 CFR Part 20, Appendix B, Table 2. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Section 4.3.8.2, Potential Radiological Impacts from Decommissioning Activities, fails to adequately consider the potential for decommissioning activities to spread or hide radiological contamination. The presumption is that accidents or mistakes will not take place, when experience at decommissioning plants shows that they do. The report fails to draw from this experience. For example, early in the decommissioning of one site and prior to complete radiological survey, a trench was dug across an impacted area to lay an electrical cable to power equipment no longer serviced through the plant. The trench was left open to the weather for a few days, then backfilled with loose material and thus could permit rainwater to carry contamination deeper and spread it further. Individually, such activities may not provide what are termed significant doses, but they have the potential to add incremental to the dose of future site occupants and overall risk and may violate ALARA principles. The potential environmental impacts of such activities should be evaluated. Incidents have occurred in which workers left the site with contaminated clothing and in which train car loads of class A waste were permitted to languish for weeks on a siding in a residential community. Although radiation levels in these instances were extremely low, the potential for greater exposures existed. Such scenarios should be considered, worst case, in preparing the GEIS. **(CL-13/14)**

Response: *Decommissioning experience related to characterization of radiological contamination and decontamination was obtained from many of the permanently shutdown reactors currently in decommissioning. This experience is summarized in Section 4.3.8 and Appendix G of the Supplement. Potential radiological accidents for all permanently shutdown plants were characterized and presented in Section 4.3.9 and Appendix I of the Supplement. The scenarios considered in Appendix I are considered appropriate for evaluating the environmental impacts from decommissioning. Furthermore, accidental releases of radioactive contamination are investigated on a site-specific basis. Such investigations focus on the potential and actual exposure of workers and the public. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Page 4-28, Section 4.3.8.3. This discussion in this section indicates that public and occupational dose comparisons were made with the facility's EIS for normal operations and with the 1988 GEIS. This statement appears to contradict earlier statements about the assessment of impacts being based on NRC regulatory limits for worker protection. Please clarify how the comparisons were made. **(CL-16/64)**

Response: *The comparisons of public and occupational doses were made to identify whether the envelope for radiological impacts to workers and the public needs to be adjusted from the 1988 GEIS. The level of significance was determined using the regulatory limits in 10 CFR Part 20, "Standards for Protection Against Radiation." The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Page 4-29, Section 4.3.8.3. Line 14 indicates that the data used in the evaluation are those presented in Appendix G. Appendix G uses units of collective dose equivalent; however, as also outlined in the appendix, the radiation protection standards are in units of annual individual dose. The Supplement should use consistent units and provide data on population densities for nuclear power plants.

Appendix G.2 (page G-19) provides the average public dose within a 50 miles radius of a facility. The Supplement should clarify if facilities which fall outside this analysis (e.g., have denser populations yielding more person-rem than indicated in the appendix) must complete a site-specific analysis. **(CL-16/65)**

Response: *Appendix G provides a general discussion on radiation protection to assist the reader in understanding the basis for the analysis and conclusions in Chapter 4. The information in Appendix G is abstracted from a variety of published documents making consistency in units difficult. The staff chose to report the units as given in the referenced document.*

The discussion in 4.3.8.3, Evaluation, addresses public dose and states that both the average individual dose and the collective doses attributable to decommissioning activities are not substantially different from those experienced by the public during operation and are much lower than from natural background radiation. The NRC regulations do not establish collective dose limits to the population surrounding a nuclear plant but rather address limits to individual dose. The individual dose limits were established to assure that the radiological impact to the public from the nuclear facility would be SMALL. Even if the anticipated collective public dose attributable to a specific facility decommissioning exceeded the collective dose values given in Table G-13 of the Supplement no site-specific analysis would be required. A site specific assessment would not be required for decommissioning activities as long as the highest dose to an individual member of the public from sources under the licensee's does not exceed the limit in 10 CFR Part 20 of 1 mSv/yr (0.1 rem/yr) and effluent concentrations do not exceed the levels specified in 10 CFR Part 20,Appendix B, Table 2, at the unrestricted boundary. In addition, the dose from external sources in an unrestricted area should not exceed 0.02 mSv(0.002 rem) in any given hour or 0.5 mSv (0.05 rem) in 1 year. If these limits are not exceeded, the radiological impacts, regardless of the collective dose to the population within the 50 mile radius, are inconsequential. The comment did not provide new information related to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: Page 4-31, Section 4.3.8.4. While the overall worker health impact is SMALL,

Appendix G shows data from some decommissioning facilities where worker exposure is higher during decommissioning than during operations. The Supplement should clarify how these

higher exposure levels compare with the radiation protection standards. Also, this section should clarify whether an analysis was done of the normal wastewater streams produced during decommissioning that are contaminated with radiation. **(CL-16/66)**

Response: *Annual collective doses at decommissioning facilities vary widely with time depending on the nature of the activities taking place during the year and the number of workers involved in those activities. Similar variations can also occur at operating facilities during periods of major maintenance. Although the annual average collective dose for decommissioning facilities is generally lower over the long-term than during active operations at the same facility, the maximum collective dose during any given year may be comparable to, or higher than, the annual dose during a typical year of operation. No individual workers at decommissioning (or operating) facilities have exceeded the regulatory dose limit of 0.05 Sv/y (5 rem/y) since the late 1980s.*

Decommissioning activities are typically planned to minimize generation of liquid waste, which is ultimately solidified and managed with other solid radioactive waste. Because the facility cooling systems are shut down during decommissioning, these activities would not generate large volumes of liquid effluents to which members of the public might be exposed. Nevertheless the licensee is required to submit an effluent release report to the NRC on an annual basis that summarizes radioactive releases over the previous 12 months. The procedures and results of the monitoring programs are inspected and reviewed by the NRC staff to ensure requirements are being met. The wastewater streams do contain measurable amounts of radiological contaminants, however they have consistently been within regulatory limits. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: On Page M-2 it says, under the glossary, under Background Radiation, that "the typically quoted United States average individual exposure from background radiation is 360 mrem per year." It may be typically quoted, but it is a blatant LIE. For example, typical background radiation in Georgia is 42 mrem year according to the state (which recently upped it a notch probably due to the radioactive fallout on the state from nuclear power plants and the Savannah River Nuclear Site on its borders.) **(CL-20/103)**

Response: *Background radiation from various sources differs depending on the location within the United States. The value quoted in this document is an average for the United States, including cosmic radiation, terrestrial sources, natural radon, and artificial exposures (largely for medical purposes). The value was taken from the National Council on Radiation Protection and Measurements (NCRP's) Report No. 94 issued December 30, 1987. The dose quoted for*

Georgia probably did not include the component from radon, which is the largest contributor overall. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: On Page 4-29 the NUREG (Section 4.3.8.3) concludes that it is not necessary to update estimates for collective dose due to decommissioning activities. This is an important conclusion that is supported by the current range in collective dose that decommissioning plants have experienced. Any change to this conclusion needs to be well supported by actual data and needs to be thoroughly studied to identify all potential impacts. **(CL-31/10)**

Response: *The staff agrees with this comment. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Table 4-1 on page 4-30 is misleading. The totals given include 100 rem of transportation dose that is not tracked by the facility undergoing decommissioning. It also does not include dose incurred during construction of a Spent Fuel Pool Island or in support of a dry cask storage campaign. A footnote should be added explaining these differences. **(CL-31/11)**

Response: *Section 4.3.8 of the Supplement indicates that the estimates in the table do not represent dose estimates for the same activities. Some of the estimates include doses from transportation of radioactive material, while others do not. Table 4-1 only provides a comparison of occupational dose estimates. Section 4.3.17 provides information on transportation impacts from decommissioning.*

Comment: The Draft even says during licensing the applicants commit to implement ALARA programs. The combination of ICRP, NRC, NCRP, and ALARA standards is, and has been a recipe for premeditated murder and/or illness, genetic damage and great suffering as it is. **(CL-20/8)**

Comment: R.M. Sievert (after whom the unit the Sievert is named) pointed out that there was no level below which radiation did not cause damage, no threshold that must be exceeded for damage to occur, yet NRC says a threshold must be exceeded for effect to occur, I believe Sievert. The ICRP standard of 5 rem per year is based on a principle called risk/benefit that allows a one in five thousand chance of contracting cancer. In other words, the death or cancer risk is the workers and the publics', the benefits are the dollars flowing to the industry and the NRC (from the industry in return for NRC services and licenses etc.). **(CL-20/7)**

Comment: The exposure allowed by regulation is, in fact, slow death, and furthermore, worker doses can't always be trusted because of faulty measuring equipment, horror stories of workers being told not to wear their dosimeters periodically, and so on. The dose received also has a

different effect on each person depending on age, sex, current and past health status and many other factors, plus each organ is affected differently. **(CL-20/55)**

Comment: Regarding Occupational Dose and nuclear power plant exposure data (Page. G 12, etc.). The regulatory limits for exposure were not set based on medical reasons but were set in order to enable the industry to operate - that is historic FACT because what people are being exposed to is either not found in nature (i.e., it is man-made) or found in nature at far, far lower levels. **(CL-20/54)**

Comment: To add to these levels by deliberately ignoring the dangers of radiation exposure is wantonly criminal. Those who do so will go down in history as villains of the worst sort: smug, obtuse, shrivel-hearted, deceiving, opportunistic, self-serving, cowardly, corrupt people who really ought to know better. **(CL-33/4)**

Comment: Environmental and health risks from improper decommissioning are very high, particularly to neighboring communities. **(CL-45/2)**

Comment: Health problems in the community must be determined and taken into consideration when decommissioning plans are being established since continued exposure to radiation through routine decommissioning releases and the inadvertent release of hot particles can jeopardize the health and safety of the public. **(CL-50/10)**

Comment: The direct gamma radiation coming off the plants to the public is the equivalent of a continuous x-ray emanating from their midst. No x-ray is "negligible." **(CL-20/94)**

Comment: That no one asked to be exposed to ANY dose of radiation, and most people in surrounding communities don't even know they are being exposed, or if they know, they think they are being protected because they think there is a safe level of radiation. **(CL-20/98)**

Comment: There are no "acceptable levels" - the public does not accept any level of radioactive contamination - plutonium, cobalt-60, Strontium-90, etc. or tritium, radioactive iodine and so on and on - **(CL-20/105)**

Comment: Most of us also realize that the immune systems of every living thing on this planet – human systems included – are becoming intolerably stressed by mounting (and synergistically interacting) levels of pollution of all sorts. **(CL-33/3)**

Comment: You are insuring the further deterioration of health for innocent civilians and this planet. **(CL-34/2)**

Comment: Underlying these failures of the agency's responsibility for the facilities and activities that it had sanctioned by granting an operating license and through its regulatory actions and inactions is the failure of the NRC - and of EPA - to set radiation protection standards that recognize the great varieties of adverse effects of low-level radiation on human beings. **(CL-52/12)**

Comment: But it is also increasingly important to incorporate into radiation protection standards low-dose effects. **(CL-52/20)**

Comment: One problem here is that the only non-stochastic effects considered in the GIS—GEIS are those related to above threshold doses which cause such things as cataracts or other high dose morbidities. This is unacceptable. There are many morbidities which are associated with low dose radiation which do not rise to the level of effects on cataracts, such as the effect on the human immune system and many other non-cancer effects. This is missing from the generic statement. **(AT-F/6)**

Comment: Even the NRC admitted back in the late '70's that there was no safe level. **(CL-20/99)**

Response: *The NRC's primary mission is to protect the public health and safety, and the environment from the effects of radiation from nuclear reactors, materials, and waste facilities. The NRC's regulatory limits for radiological protection are set to protect workers and the public from the harmful health effects of radiation on humans. The limits are based on the recommendations of standards-setting organizations. Radiation standards reflect extensive scientific study by national and international organizations (International Commission on Radiological Protection [ICRP], National Council on Radiation Protection and Measurements [NCRP], and the National Academy of Sciences [NAS]) and are conservative to ensure that the public and workers at nuclear power plants are protected. The NRC radiation exposure standards are presented in 10 CFR Part 20, "Standards for Protection Against Radiation," and are based on the recommendations in ICRP 26 and 30. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: In addition to onsite worker doses, decommissioning exposure calculations must capture and include doses incurred by workers involved in offsite reactor decommissioning activities i.e. shipping, decontamination, smelting, recycling etc., of all radioactive materials and components. **(CL-50/16)**

Comment: The NRC must incorporate offsite contamination in all evaluations of environmental impacts. **(CL-25/8)**

Comment: I utterly oppose [that] NRC should incorporate offsite contamination into all evaluations of environmental impacts. **(CL-33/12)**

Comment: I ask that the NRC incorporate offsite contamination into all evaluations of environmental impacts. **(CL-26/9)**

Comment: The contamination of soil, land and property beyond the station boundary line must be included in the decommissioning analysis and plan. Offsite migration of radioactive materials has occurred through both deliberate and inadvertent removal of materials originally contaminated onsite (tools, concrete construction blocks, etc.). For example, concrete cinderblocks used to construct a shield wall at the Connecticut Yankee's Haddam Neck nuclear power station were inappropriately distributed to affected communities as construction materials for buildings including a children's daycare facility. We believe the Connecticut Yankee incident is not an isolated case. The scope of the current definition does not provide for the investigation, analysis and mitigation of radioactive materials, equipment and components originating from a nuclear facility that have been deliberately or inadvertently released to affected communities. **(CL-48/14)**

Comment: NRC ignores radiation offsite and permits utilities to ignore it in decommissioning planning. NIRS calls on the NRC to incorporate offsite contamination into all evaluations of environmental impacts. **(CL-48/41)**

Comment: One does not want radioactive and chemical particulate matter getting offsite if possible. **(CL-20/34)**

Comment: I am opposed to the following proposal(s) in the EIS: NRC ignores radiation offsite. **(CL-26/7)**

Comment: I am opposed to the following proposal(s) in the EIS: NRC permits utilities to ignore it [radiation offsite] in decommissioning planning. **(CL-26/8)**

Comment: I utterly oppose ignoring offsite radiation and permitting utilities to ignore it in decommission planning. **(CL-33/11)**

Comment: I am opposed to the following change to NUREG-0586: In Supplement 1 to the Generic Environmental Impact Statement on Decommissioning: NRC ignores radiation offsite and permits utilities to ignore it in decommissioning planning. NIRS calls on the NRC to

incorporate offsite contamination into all evaluations of environmental impacts. **(CL-43/6)**

Comment: The extent to which radioactive contamination levels that are permitted to be released from regulatory control for decommissioning would result in the release of radioactive materials routinely. **(CL-38/5)**

Comment: I am opposed to NRC regulations pertaining to Decommissioning which would allow offsite radiation to be ignored, and permits utilities to ignore it in decommissioning planning. It is imperative to include offsite contamination into all aspects of decommissioning planning and evaluation of environmental impacts. **(CL-44/7)**

Comment: I am hopeful that you will act in the interest of the public, & listen to the concerns of all of the communities that will be affected by the by-products of nuclear energy. Offsite radiation is something that must not be ignored. **(CL-49/2)**

Comment: There are right now already elevated levels of some radioactive contaminants nearly 100 miles downstream of Plant Hatch and Plant Vogtle. **(AT-A/33)**

Response: *All nuclear power plants were reviewed and licensed with the expectation that there would be routine very low-level releases of radioactivity to the environment through airborne and liquid releases from the facility and that these releases would be detectable offsite. Gaseous and liquid releases to the environment must be monitored and meet the requirements of 10 CFR Part 20, Appendix B, Table 2. Therefore, contaminants may be present and detectable offsite, however the release limits have been designed and proven to be protective of the health and safety of the public and environment. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: As techniques of research and analysis in complex biological systems improves, it is becoming more apparent to thoughtful, careful scientists and regulators that it is imperative to include the impacts of low-level radiation exposures on all forms of living beings, not merely on humans. **(CL-52/19)**

Comment: Page 4-27, Section 4.3.8, lines 17-21. The Supplement should clarify the statement about the "relatively lower sensitivity of non-human species to radiation." Is this statement based on scientific studies or is the impact to non-humans not known? Why were decommissioning's radiological impacts on ecological receptors defined as outside the scope of the Supplement? **(CL-16/63)**

Response: *The effects of ionizing radiation on non-human biota have been studied since at least the 1940s. Radiological impacts on ecological receptors are not within the scope of this Supplement because the NRC does not maintain radiation protection guidelines for non-human organisms because they are assumed to be protected by the radiation protection standards for humans. The validity of the assumption that radiation guidelines, which are protective of the public, would also provide adequate protection to plants and animals has been upheld by national and international bodies that have examined the issue, including the National Council on Radiation Protection and Measurement (NCRP Report No. 109, Effects of Ionizing Radiation on Aquatic Organisms, 1991) and the International Atomic Energy Agency (IAEA Technical Report Series No. 332, Effects of Ionizing Radiation on Plants and Animals at Levels Implied by Current Radiation Protection Standards, 1992). In both of those studies, it was emphasized that non-human species may be adversely affected by such radiation levels, but effects at the population level are not detectable. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: Contamination means: that some thing/someone etc., has been brought into contact with something that defiles or pollutes it etc., - go look the word up - NRC must stop redefining words and lying about their meaning. **(CL-20/106)**

Comment: The definition of CONTAMINATION is also a LIE, in that it states that something is contaminated if its in excess of "acceptable levels." **(CL-20/104)**

Response: *The definition for contamination used in the Supplement is "undesired radioactive material or residual radioactivity that is deposited on the surface of or inside structures, areas, objects or people in excess of acceptable levels (e.g., for a release of a site or facility for unrestricted use)." This word is defined in Appendix M for clarification as used in this Supplement and is generally accepted by radiation protection experts. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: The radioactive material releases is not released in stringently controlled conditions, technical specifications are often violated, monitoring is only done at select locations and frequently monitors don't work. **(CL-20/91)**

Response: *The NRC sets limits on radiological effluents, requires monitoring of effluents and foodstuffs to ensure those limits are met, and has set dose limits to regulate the release of radioactive material from nuclear power facilities. The regulations are intentionally conservative and provide adequate protection for the public, including the most radiosensitive members of the population. All reactor licensees monitor their effluent and calculate offsite doses caused by radioactive liquid and gaseous effluents. These calculations are performed to demonstrate the*

licensee's compliance with its technical specifications and NRC regulations. Requirements for redundancy in monitoring as well as the monitoring of various pathways that could result in the release of radiation to the environment ensure that unmonitored and unplanned releases are avoided. The licensee's Offsite Dose Calculation Manual (ODCM) provides for collection and analysis of a variety of samples such as soil, water, plants, and animals. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: NRC ignores radiation exposures to children and other vulnerable members of the population and creates a fictitious highest exposed "critical group" based on unsubstantiated assumptions. **(CL-48/40)**

Comment: I am very concerned that children, who are much more susceptible to the effects of radiation, may not be being looked at in the Environmental Impact Statement. This is a very serious issue, & if left unaddressed, would not only be morally wrong, but could lead to a horrible name in history for the NRC, & possibly legal action. **(CL-49/1)**

Comment: I utterly oppose ignoring radiation exposures to children and other vulnerable members of the population and creating a fictitious highest exposed "critical group" based on unsubstantiated assumptions. **(CL-33/10)**

Comment: All decommissioning activities need to consider the impacts of radiation exposure to workers and the public. Radiation exposures to children and other vulnerable members of the population should be separately and realistically addressed with all pathways to exposure closely examined. Assumptions about off-site exposure should be substantiated with full peer-review from neutral parties, i.e. not employees of the nuclear utilities. The risk to public health cannot be minimized or discounted. **(CL-40/2)**

Comment: Affected populations are composed of many individuals who are not close to being that "standard man" in whom the NRC places so much faith. **(CL-52/13)**

Comment: I am opposed to the following change to NUREG-0586: In Supplement 1 to the Generic Environmental Impact Statement on Decommissioning: NRC ignores radiation exposures to children and other vulnerable members of the population and creates a fictitious highest exposed "critical group" based on unsubstantiated assumptions. **(CL-43/5)**

Comment: Using an adult male as the average member of the critical population for dose calculations in site release criteria does not establish effective cleanup standards. The adult male assumptions address workers during reactor operation; however when reactor sites are released for unrestricted use the "average member" of the critical population requires the inclusion of children since they bear the greatest burden of the effects of ionizing radiation as

described in the Biological Effects of Ionizing Radiation (BEIR) V report. **(CL-50/17)**

Response: *The NRC's primary mission is to protect the public health and safety, and the environment from the effects of radiation from nuclear reactors, materials, and waste facilities. The NRC's regulatory limits for radiological protection are set to protect workers and the public from the harmful health effects of radiation on humans. The limits are based on the recommendations of standards-setting organizations. Radiation standards reflect extensive scientific study by national and international organizations (the International Commission on Radiological Protection [ICRP], the National Council on Radiation Protection and Measurements [NCRP], and the National Academy of Sciences [NAS]) and are conservative to ensure that the public and workers at nuclear power plants are protected. The NRC radiation exposure standards are presented in 10 CFR Part 20, "Standards for Protection Against Radiation," and are based on the recommendations in ICRP 26 and 30. The assumptions used for the critical group are not fictitious or unsubstantiated. The "critical group" means the group of individuals reasonably expected to receive the highest exposure to residual radioactivity within the assumptions of a particular scenario. The average dose to a member of the critical group is represented by the average of the doses for all members of the critical group, which in turn is assumed to represent the most likely exposure situation. For example, when considering whether it is appropriate to "release" a building (allow people to work in the building without restrictions) that has been decontaminated, the critical group would be the group of regular employees that would work in the building. If radiation in the soil is the concern, then the scenario used to represent the maximally exposed individual is that of a resident farmer. The assumptions used for this scenario are "prudently conservative" and tend to overestimate the potential doses. The added sensitivity of certain members of the population, such as pregnant women, infants, and children, are accounted for in the analysis. However, the most sensitive member may not always be the member of the population that receives the highest dose. This is especially true if the most sensitive member (for example, an infant) does not participate in specific activities that may provide the greatest dose or if he/she does not eat specific foods that cause the greatest dose. These comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: ALARA is not a sufficient basis for judging proper methods. **(CL-10/11)**

Comment: NRC ignores radiation dangers after decommissioning is done and utility is relieved of liability. **(CL-48/39)**

Response: *The Commission has established a dose of 0.25 mSv (25 mrem) per year total effective dose equivalent to an average member of the critical group as an acceptable criterion for release of any site for unrestricted use. The licensee will be required to demonstrate that the site can meet this criterion before the license will be terminated for unrestricted use. In*

addition to the dose criteria, the regulations state that the licensee must show that residual radioactivity left on the site have been reduced to levels that are as low as is reasonably achievable (ALARA). The concept of ALARA means that doses must be reduced to the lowest possible level considering economic and societal factors. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.

Comment: All sites should have audible (sirens) alarms that are triggered during decommissioning, and after decommissioning, when monitors exceed the EPA levels EPA allows, but reduced below what EPA allows to give an advance warning. Such audible alarm systems are absolutely vital also during the time radioactive spent fuel is still on the site, these alarms should be at various locations onsite, including next to the spent fuel pool and one above it, and next to an ISFSI/cask area and suspended on a wire or pole above it. The alarms should be audible miles of site via relay loudspeakers. **(CL-20/89)**

Response: *Requirements for emergency response at nuclear facilities are provided in 10 CFR Part 50 and their application to decommissioning facilities is stated. This Supplement does not (1) establish or revise regulations, (2) impose requirements, or (3) provide relief from requirements. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Clear methodologies should be established for the clean up of transuranics and hot particles. Yankee Rowe failed to include transuranic measurements in its LTP and currently Connecticut Yankee intends to avoid doing direct alpha measurements (and beta measurements) through less expensive surrogate measurements of easier-to-detect radionuclides...Surrogate measurements must not be allowed at sites where consistent ratios of radionuclides do not exist. **(CL-50/20)**

Response: *The purpose of this Supplement does not include establishing methodologies for decommissioning or measurement of radionuclides. The information that should be presented in the LTP is not included as part of this GEIS. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: DOESN'T NRC UNDERSTAND THAT ONE CANNOT DECONTAMINATE SOMETHING RADIOACTIVELY CONTAMINATED IN THE TRADITIONAL SENSE, UNLIKE WITH A CHEMICAL OR OTHER CONTAMINANT, WHATEVER IS DONE TO SOMETHING RADIOACTIVE DOES NOT CHANGE THE CHARACTER OF THE RADIATION, IT CONTINUES TO EMIT ITS DEADLY ALPHA, BETA, GAMMA, NEUTRON ETC. RADIATION THROUGH THE FULL RADIOACTIVE HAZARDOUS LIFE. **(CL-20/70)**

Response: *The definition of decontamination is the removal and appropriate disposal of radioactive materials to ALARA levels. The NRC has prescribed specific radiological criteria for license termination. Radioactive materials removed during decontamination are appropriately disposed of just as any other chemical material would be. Subpart K of 10 CFR Part 20 provides the requirements for the disposal of licensed material, including low-level waste. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: And to ignore radiation concerns to the unsuspecting public health is criminal. It is outrageous to allow the reactors to be liability-free. **(CL-32/3)**

Response: *NRC's actions do not in any way eliminate the liability of licensees of nuclear power reactors. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: An EIS must also consider the effects of the synergies between and among ionizing radiation and the multitude of hazardous materials also released into the environment. **(CL-52/21)**

Response: *The levels of radiation and amounts of radioactive material that are released offsite as considered in this document, are so low that synergies between radiation and hazardous materials are not an issue. This document does not look at the synergies between ionizing radiation and hazardous materials released into the environment. At the levels of radioactive releases from decommissioning plants there has been no documented cases of harmful synergistic interactions with hazardous waste that could pose a public health and safety concern. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: I do not think it's outside of the scope of this particular document to have some regulations about the speed, let's say, of how the total amount of radiation on a given site was reduced. I think that would be perfectly within the scope of this document. **(SF-C/7)**

Response: *The mission of the NRC includes ensuring that decommissioning of all nuclear reactor facilities will be accomplished in a safe and timely manner. NRC regulations currently require that all decommissioning activities be completed within 60 years after a nuclear power plant permanently ceases operations, unless exemptions are granted on a case-by-case basis. The Supplement does not (1) establish or revise regulations, (2) impose requirements, (3) provide relief from requirements, or (4) provide guidance on the decommissioning process. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The potential threat of a release along the shoreline or into the lake of radioactive material during decommissioning or storage of spent fuel requires special consideration. **(CL-11/3)**

Response: *The licensee is allowed to release gaseous and liquid effluents to the environment, but the releases must be monitored and meet the requirements of 10 CFR Part 20, Appendix B, Table 2; therefore, contaminants may be present and detectable offsite. However, the release limits have been designed and proven to be protective of the health and safety of the public and environment. Although long-term storage of spent fuel is not within the scope of the Supplement, as described in Section 1.3, "Scope of This Supplement," NRC is committed to ensuring that both spent fuel and low-level wastes are managed to prevent detrimental health impacts to the public. The NRC has stated in its regulations that "The Commission has made a generic determination that, if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impact of at least 30 years beyond the licensed life for operation (which may include the term of renewed license) of that reactor at its spent fuel storage basin or at either onsite or offsite independent fuel-storage installations." Further, the Commission believes there is reasonable assurance that at least one mined geological repository will be available in the first quarter of the 21st century, and sufficient repository capacity will be available within 30 years beyond the licensed life for operation of any reactor to dispose of the commercial high-level waste and spent fuel originating in such a reactor and generated up to that time. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Third, the Draft GEIS does not explain at what point in time radioactive decay of the material will make it sufficiently safe to proceed with any further dismantling. NRC should shorten the acceptable time period for SAFSTOR and link it to the timeframe that would make the material safer. NRC should encourage licensees to go forward with dismantling the facility under DECON as soon as appropriate, even if they start with placing the facility in SAFSTOR. **(CL-11/11)**

Response: *NRC regulations currently require that all decommissioning activities be completed within 60 years after a nuclear power plant permanently ceases operations, unless exemptions are granted on a case-by-case basis. The purpose of the Supplement is not to discuss acceptable time periods for decommissioning activities or provide or suggest to licensees when they should undergo decommissioning activities. The Supplement describes the potential environmental impacts from decommissioning activities and provides an envelope of the impacts that the licensee can compare to prior to undertaking a decommissioning activity. The purpose of the Supplement is described in Section 1.1, "Purpose and Need for This Supplement." The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The area being worked in should be covered to contain dust if it means covering the whole site with a tent with an adhesive inner surface to capture particulates. **(CL-20/33)**

Response: *The use of enclosures (such as plastic "tents") during decommissioning to contain airborne contamination is a common practice. However, the enclosures are limited in size to the area that is being worked on in order to contain contamination and not allow it to drift to areas that are not contaminated. Covering the whole site with a tent would not be an appropriate or realistically feasible method of containing contamination. In addition, the specification of methods to use during decommissioning is not within the scope of this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: For the Draft to take the attitude of "well, the doses at plants being decommissioned are generally only a small fraction of doses at operating plants," p. G 13 is no comfort, and all the charts show, concerning Occupational doses (P. G 14 and on), is thousands upon thousands of contaminated workers. **(CL-20/56)**

Response: *The connection between occupational doses and contaminated workers is incorrect. Although some occupational dose is associated with contamination, most is from direct radiation (radioactive sources in piping or other components, including activation products). The NRC's regulatory limits for radiological protection are set to protect workers and the public from the harmful health effects of radiation on humans. The limits are based on the recommendations of standards-setting organizations. Radiation standards reflect extensive scientific study by national and international organizations (the International Commission on Radiological Protection [ICRP], the National Council on Radiation Protection and Measurements [NCRP], and the National Academy of Sciences [NAS]) and are conservative to ensure that the public and workers at nuclear power plants are protected. The NRC radiation exposure standards are presented in 10 CFR Part 20, "Standards for Protection Against Radiation," and are based on the recommendations in ICRP 26 and 30. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: "Dose to members of the public" Pg. G-19, and following pages, the doses to the public are listed in the usual deceptive and inaccurate manner. **(CL-20/90)**

Response: *The comment cannot be evaluated because it did not provide specific information. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: WHEN YOU CALCULATED THE RADIO-IODINES, DID YOU ADD IN THE HUGE RADIO-IODINE RELEASE OFF PLANT FARLEY THAT WENT OVER GEORGIA? **(CL-20/97)**

Response: *It is not clear what calculation the commenter is referring to. The NRC sets limits on radiological effluents, requires monitoring of effluents and foodstuffs to ensure those limits are met, and has set dose limits to regulate the release of radioactive material from nuclear power facilities. The regulations are intentionally conservative and provide adequate protection for the public, including the most radiosensitive members of the population. All reactor licensees monitor their effluent and calculate offsite doses caused by radioactive liquid and gaseous effluents. These calculations are performed to demonstrate the licensee's compliance with its technical specifications and NRC regulations. The licensee's Offsite Dose Calculation Manual (ODCM) provides for collection and analysis of a variety of samples such as soil, water, plants, and animals. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The degradation that will occur due to the constant bombardment of radiation could affect how the plant is dismantled and how the radiation exposures will be for workers and could easily add new accident scenarios. For instance, Plant Hatch has a cracked core shroud, and I know other plants do, too. But I don't know—that's question, I guess, have any of those been dismantled? How will that deficiency affect decommissioning? These factors, among others, must be incorporated in addressing the decommissioning of individual facilities. **(AT-A/27)**

Response: *The reactor fuel will be removed from the reactor core before any major decommissioning activities take place. A reactor with a cracked core shroud will not pose any additional difficulty in decommissioning. The industry has considerable experience in the removal of damaged components (e.g., the cleanup at Three Mile Island, Unit 2). Decommisioning can be accomplished efficiently and safely with minimal radiation exposure to the workforce. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Okay, we searched the document to determine what the actual acceptable risk is to the public for the activities addressed in your process. And what we determined is that it's a pretty wide range, from three to 21 person rems. Okay, yeah. What is the absolute level of acceptable risk -- and I know it ranges in the experiences that the NRC has had at different decommissioned power plants. And so there were different doses identified at different plant locations and I know some of the variables that went into that. What is the absolute level of acceptable risk that NRC will allow for decommissioning activity in general? That's number one. **(AT-B/1)**

Response: *This Supplement does not establish acceptable risk levels; it lists reported doses for individuals and populations and provides estimates of potential impacts. NRC and EPA regulations contain permissible dose limits for individuals. Neither agency has established*

permissible population doses. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: I don't think the long-term radiological impacts [from entombment] are being addressed and the scope of this document is inadequate as it relates to radiological impacts. I think in generic terms, that should be addressed. **(CH-C/6)**

Response: *Entombment was addressed in this Supplement at the request of the Commission. Although Entombment, as described in this Supplement, does not result in unrestricted release at License Termination, the environmental impacts from the activities for preparing for Entombment can be evaluated and that was within the scope of this Supplement. In October 2001, the Commission published, for public comment, an advance notice of proposed rulemaking (ANPR) on Entombment Options for Power Reactors (66 FR 32551). The NRC's regulatory limits for radiological protection are set to protect workers. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The NRC is charged to protect the quality of the human environment and we ask that they all can uphold that charge. The current draft GEIS is not protective and needs major improvement. **(CL-08/33)**

Response: *The NRC's mission includes ensuring that decommissioning of all nuclear reactor facilities will be accomplished in a safe and timely manner. This comment cannot be evaluated because it did not provide specific information. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The U.S. Environmental Protection Agency (EPA) and most state agencies that set radiation exposure standards employ measures, limits, or goals expressed in terms of risk. NRC Radiological Site Release Criteria appear to yield a higher risk to the public than those risk levels acceptable to EPA under CERCLA. If this is so, then the GEIS should contain the comparisons (risk to risk, nuclear to chemical, one in ten thousand to one in a million) in plain language. The presentation of risk in Appendix G is unnecessarily obtuse and murky. It appears not to contain a comparison to permissible or target risks from non-radiological pollutants, which in all fairness, it should. **(CL-13/2)**

Response: *Although licensees may be required to meet state and other Federal regulations during decommissioning, this Supplement evaluated environmental impacts from decommissioning activities using, where appropriate, NRC regulations and guidelines as part of the evaluation. The statement is made that the GEIS should contain the comparisons (risk to*

risk, nuclear to chemical, one in ten thousand to one in a million). NEPA requires Federal agencies to consider every significant aspect of the proposed action. NEPA requires that the agencies inform the public that it has considered environmental concerns in its decision-making process and it requires agencies to take a hand look at the environmental consequences of an action. It does not require comparisons between technologies , or comparisons of risks between the various technologies. Appendix G provides a summary of risks from radiation exposure. Section G.1.1.4.3, "Risk Coefficient Selection," discusses the use of the BEIR-V risk coefficient of 8 x 10^{-4} fatalities per 0.01 person-Sv (1 person-rem). The Supplement provides a range of occupational doses experienced in permanently shutdown reactors for a number of decommissioning activities. The staff concludes that the occupational and public health impact from radiological dose for all decommissioning activities is generic and the impact will be SMALL. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: Water quality should continue to be tested for radioactive contaminants for at least 600 years which is the full radioactive hazardous life approximately for cesium-137, which is a contaminant of concern in fish and shellfish as it migrates to muscle in particular. **(CL-20/37)**

Response: *There are regulations in place concerning the release of any material from a nuclear power facility. The plants were licensed with the expectation that there would be routine releases to the air and water due to normal operations and that these releases would be detectable offsite. The releases are limited to ensure public health and safety. Liquid releases to the environment must be monitored and meet the requirements of 10 CFR Part 20, Appendix B, Table 2. Therefore, contaminants may be present and detectable offsite, however the release limits have been designed and proven to be protective of the health and safety of the public and the environment. No offsite decontamination efforts or additional monitoring procedures are warranted. The Supplement does not (1) establish policy, (2) establish or revise regulations, (3) impose requirements, (4) provide relief from requirements, or (5) provide guidance on the decommissioning process. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: NRC MUST MAKE LICENSEES, CONTRACTORS, SUBCONTRACTORS AND ANYONE WHO WORKS ON DECOMMISSIONING TAKE THE EFFECTS OF RADIOACTIVE "DAUGHTER" PRODUCTS INTO CONSIDERATION AS THEY MAY HAVE VERY DIFFERENT PHYSICAL, CHEMICAL AND RADIOACTIVE PROPERTIES THAN THE RADIOACTIVE "PARENT." THIS MUST BE PART OF DECOMMISSIONING STANDARDS. **(CL-20/52)**

Response: *The NRC radiation exposure standards are presented in 10 CFR Part 20 and take into account daughter products. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Emissions are allowed to be averaged out to make them appear less, and there is no independent monitoring and utilities do and say whatever they please. **(CL-20/92)**

Response: *Emissions are reported as total for a given period, not as averages. The NRC sets limits on radiological effluents, requires monitoring of effluents and foodstuffs to ensure those limits are met, and has set dose limits to regulate the release of radioactive material from nuclear power facilities. The regulations are intentionally conservative and provide adequate protection for the public, including the most radiosensitive members of the population. All reactor licensees monitor their effluents and calculate offsite doses caused by radioactive liquid and gaseous effluents. These calculations are performed to demonstrate the licensee's compliance with its technical specifications and NRC regulations. The licensee's Offsite Dose Calculation Manual (ODCM) provides for collection and analysis of a variety of samples such as soil, water, plants, and animals. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: I know that I am not alone in asking you to protect our citizens from radioactivity on such a large scale and hope that you will live up to your responsibility by not lessening the requirements that utility companies face when decommissioning takes place. **(CL-39/6)**

Response: *The NRC's primary mission is to protect the public health and safety, and the environment from the effects of radiation from nuclear reactors, materials, and waste facilities. The NRC has and will continue to live up to the responsibility to protect the citizens of the United States from the harmful effects of radiation resulting from the use of licensed material. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: How could the NRC, with its limited surveillance staff, make certain that each licensee would search conscientiously for contamination on the interior as well as the exterior surfaces of pipes, drain lines and ductwork? **(CL-51/10)**

Response: *Included in the license termination plan is a site characterization, which is based on radiological surveys made throughout operation of plant and decommissioning process. The purpose of the site characterization is to ensure that the final radiation surveys are conducted to cover all areas where contamination existed, remains, or has the potential to exist or remain as well as to provide data for planning further decommissioning activities. The site*

characterization contains a description of (1) the radiological contamination on the site before any cleanup activities associated with decommissioning took place, (2) a historical description of site operations, spills, and accidents, (3) a map of remaining contamination levels and contamination locations, and (4) a description of the survey instruments and supporting quality assurance practices used in the site-characterization program. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: How can the radioactive content of this structure be accurately estimated? **(CL-51/13)**

Response: *Discussion of method for estimating the radioactive content of structure is outside the scope of the Supplement. There are several methods by which the total activity could be estimated. These methods include taking core samples through the containment vessel and determining the variation of activity as a function of the location of the sample and position in the sample. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Tritium can't be contained. **(CL-20/93)**

Response: *Tritium is water with an extra neutron in the nucleus. It can be contained in the same manner as water, for instance in bottles, tanks, etc. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

O.1.7 Decommissioning Accidents

Comment: Section 4.3.9 and Appendix I discuss the potential of, and consequences of, postulated radiological accidents. On page I-2 of Appendix I, the text states, "As a result of improvements in the technology used for decommissioning, several of the accidents listed in Table 1-2 may now be considered to be of a much lower probability or, at the least, to result in much-reduced consequences." It is recommended that the text be revised to identify typical technology improvements. For example, some of the plants currently undergoing decommissioning intend to use single failure proof cranes to preclude the potential for certain postulated spent fuel cask drop or heavy load drop accidents. **(CL-06/3)**

Response: *Appendix I was revised to include reference to specific technological improvements such as the upgrading to a single failure proof crane.*

Comment: Section 4.3.9.3, page 4-35, lines 19-21 – the category of hazardous (non-radiological) chemical related accidents is listed here, which is appropriate since such accidents are possible during decommissioning. The description only mentions potential for injury to the public. However, in Section 4.3.9.2, which describes the classification of accidents as small, moderate and large, effects on workers are also discussed. This should be clarified since it appears to be inconsistent. **(CL-09/24)**

Response: *Section 4.3.9 is a discussion of offsite impacts to members of the public. The commenter is referred to Section 4.3.10 for an assessment of impacts to workers, including chemical hazards.*

Comment: I think the document needs to address fires, chemical hazards, particulates, spills. I just think there are more issues that need to be addressed in the document. **(CH-D/8)**

Response: *Appendix I of the Supplement evaluates a large number of potential accidents for plants undergoing decommissioning including fires, chemical hazards and spills. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Table I-5, page I-20 – add fire and hazardous materials to associated accidents for removal of contaminated pipe and tubing. **(CL-09/51)**

Comment: Table I-5, page I-21 – add fire and hazardous materials to associated accidents for metal component dismantlement, intact removal or partial segmentation of large components and the first three subcategories of removal of reactor pressure vessel and internals. **(CL-09/52)**

Comment: Table I-5, page I-22 – add fire to associated accidents for cut piping attachments. Add fire and hazardous materials to associated accidents for decontamination, segmentation and disposal of RCS and other larger bore piping. **(CL-09/53)**

Comment: Table I-5, page I-23 – add fire to associated accidents for deactivate systems, disposal of nonessential structures and systems; establish a permanent reactor coolant system vent path; establish a permanent containment vent path; remove dedicated safe-shutdown diesel and generator; and remove unused equipment during SAFSTOR. Add hazardous materials to deactivate systems; disposal of nonessential structures and systems; drain and flush plant systems; process, package, and ship liquid and solid radioactive wastes; remove dedicated safe-shutdown diesel and generator; dispose of non-radioactive hazardous waste; and limited decontamination of selected structures and systems. **(CL-09/54)**

Comment: In general, any activities that involve cutting or welding could lead to a fire. Precautions are implemented to minimize the possibility and respond quickly if a fire starts. Depending on the materials in the systems during operation or during earlier decommissioning activities, a hazardous materials accident is possible when removing systems, handling waste or using decontamination materials. Again, precautions are planned to minimize the possibility. **(CL-09/55)**

Response: *Table I-5 was revised and "fire" was added as a potential accident for a number of decommissioning activities.*

Comment: Page 1-8, Lines 10-13. EPA agrees that inadvertent releases resulting from an accident should be handled on a site-specific basis. We would like to see an explanation of how the analysis of impacts from an accident would be handled. **(CL-16/14)**

Response: *As stated in the Supplement, the discussion of environmental impacts from reactors that were permanently shut-down due to a major accident is outside the scope of this document and would require a site-specific analysis. In response to EPA's request, the staff recommends that EPA examine NUREG-0683, as supplemented. NUREG-0683 is a Programmatic EIS related to the decontamination and disposal of radioactive wastes resulting from the March 28, 1979 accident at Three Mile Island, Unit 2. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Perhaps most disgusting is that under "Consequence of Potential Accidents" p. I-16 the impression given is that spent fuel pool accident risks are low, when in fact NRC's own cited document shows, hundreds upon hundreds would die and also many spent fuel pools were highly vulnerable to catastrophic accident due to earthquakes and a lot more besides - spent fuel pool accidents would have terrible consequences. **(CL-20/100)**

Response: *The level of risk is the result of the probability of occurrence and the consequences of the accident. The risk associated with spent fuel pools is low because the probability of an accident is low. Furthermore, the accident could be mitigated before a release occurs. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Table I-3 incorrectly lists site flooding as the only accident analyzed for Peach Bottom Unit 1 in the documents referenced in Appendix 1 for Peach Bottom Unit 1. The additional accidents analyzed for Peach Bottom Unit 1 that should be added to Table I-3 are:

- Release of helium coolant under containment breach (open penetration to containment) for accidents involving radioactive materials (non-fuel-related) on page I-9.

-- Fire inside reactor vessel under fire for accidents involving radioactive materials (non-fuel-related) on page I-10. **(CL-31/15)**

Response: *The additional accidents identified above for Peach Bottom Unit 1 were added to Table I-3.*

Comment: Appendix 1, Summary of Accidents For PWR and BWR Plants Undergoing Decommissioning Operations; Table 1-3 lists accidents considered in various individual plant evaluations but lists no potential consequences and no probabilities. So what good is this list except to show the random and will-nilly cafeteria approach to individual plants picking out and designing bounding accident scenarios? At one plant the limiting scenario is fuel handling accident; at another it is a fire in the low-level waste storage building. Case in Point: No fire scenarios are listed for Maine Yankee under Table 1-3, yet recently a fire occurred in a low-level waste dewatering unit and burned at several hundred degrees for more than an hour. A local volunteer fire company approached the fire without respirators and without advice from radiation protection personnel. A GEIS should contain a comprehensive generic list of potential accidents (scenarios) together with probabilities and potential consequences. **(CL-13/3)**

Response: *Potential consequences are shown in Table I-4 of Appendix I. Probabilities for accidents other than those related to the spent fuel pool have not been calculated primarily because of the low risk associated with the accidents and the potential for mitigation of the accident consequences. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Presenting licensee estimates of consequences without comment or qualification as in Table 1-4, Highest Offsite Doses Calculated for Postulated Accidents in Licensing Basis Documents, provides an incomplete picture of real potential consequences. For example, Maine Yankee asserts that loss of spent fuel pool heat sink will result in the same offsite dose as a liquid waste spill, that of .23 REM. Other than a reference to another study, NRC does not bother to explain what sort of dose spent fuel pool drain down might result in if remedial action is not taken. As dose consequences can be rather large, the actual figures should be included in he GEIS. **(CL-13/4)**

Response: *The event scenarios that lead to a spent fuel pool drain-down and subsequent large offsite radiological release are beyond design basis. While the consequences from such a postulated event can be large, the likelihood of the event is very small. The overall risk to the public is well within the quantitative health objectives of the NRC. To more accurately quantify the risk, several figures have been added to Appendix I of the Supplement and the discussion on spent fuel pool drain-down events has been appropriately modified.*

Comment: A serious accident or terrorist act could be catastrophic. Such an occurrence could result in large numbers of human fatalities, injuries and illnesses and vast areas of land uninhabitable for years. **(CL-46/4)**

Comment: Given the recent experience with wild fires at the Los Alamos and Hanford Nuclear Reservation and now the potential for flooding and massive soil erosion, the NRC should re-evaluate risk assessments and dose calculations for decommissioning reactors. **(CL-50/25)**

Response: *Once the reactor shuts down permanently, the risk to the public is greatly reduced; however, there are still accidents that may occur that could have consequences offsite. Licensees are required to examine their sites and plans for decommissioning to identify postulated accidents that could occur during decommissioning. An analysis of these accidents is required in their Final Safety Analysis Report, or equivalent document, which is part of the licensing basis for the plant. Possible accidents, such as the ones mentioned above, and many other possible scenarios, have been considered in this analysis. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: Wherever human beings are involved, there are bound to be errors and accidents. The human element cannot be removed, as we found out at Three Mile Island and Chernobyl. **(CL-10/5)**

Response: *Radiological accidents during decommissioning are considered in Appendix I of this Supplement. The comment is not specific and did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: I challenge any licensee and any NRC staffer, to walk into the area where the spent fuel pool is after the water has drained from the spent fuel pool, and try and refill the spent fuel pool with a garden hose (that is what they thought they'd do at the Georgia Institute of Technology Reactor) and see how well they can "mitigate" the situation before "offsite dose consequences could occur" - they'd be dead before they could pick up the hose. To say that such an accident could be mitigated is the height of deception. **(CL-20/101)**

Response: *The NRC staff considers loss of water from the spent fuel pool to be a very low probability accident because of design features required at all spent fuel storage pools that minimize the possibility of losing all the spent fuel coolant. Obviously, what the NRC staff had in mind as mitigation of a loss of inventory accident at a spent fuel pool was not manual refilling with a garden hose. Technology exists and it is routinely employed to work effectively in very high radiation fields. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: THE NRC SHOULD READ ITS OWN DOCUMENTS AND THE FAMOUS "CRAC 2" REPORT DONE BY SANDIA LABS, THE NRC AND THEN CONGRESSIONAL OVERSIGHT BECAUSE TO PRESENT DATA TAKEN FROM LICENSING-BASIS DOCUMENTS WHICH HISTORICALLY HAVE DOWNPLAYED ANYTHING THAT COULD HAPPEN IS OUTRAGEOUS, AND IF THERE IS STILL FUEL IN THE REACTOR AND A LOSS OF WATER COOLANT HAPPENS, EVEN IF THE REACTOR HAS BEEN SHUTDOWN RECENTLY, THERE WILL BE A MELTDOWN. **(CL-20/102)**

Response: *The staff is aware of the information that is present in the documents it publishes. This comment is general in nature and does not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Section 4.3.9.2, page 4-34 – it is not clear whether the physical injuries discussed in this section are only those due to radiological impacts or due to non-radiological aspects of an accident. The section is on radiological accidents so the former is implied, but the wording is not clear. **(CL-09/23)**

Response: *Section 4.3.9.2 was revised to refer specifically to radiological accidents. Information that could be misconstrued pertaining to nonradiological accidents has been removed from the section.*

O.1.8 Occupational (Nonradiological) Impacts

Comment: I'm going to have comments on the details of my facility, Fermi I, ranging from the status of our decommissioning since we are inactive, the final act of decommissioning...(comments on the details of my facility, Fermi I) what kind of fuel the plant used, the type of containment, some of our systems. We are cleaning up sodium residues. I'd like that stated in the report. It is one of the type of chemical activities and chemical hazards that are being done as part of decommissioning. **(CH-D/2)**

Response: *Section 4.3.10.1 was revised to include removal of sodium residues.*

Comment: There are some additional hazards that have to be addressed in the discussion of the hazards. I don't think these would affect the overall conclusions of the document. But I think there is more detail, and to some extent, some hazards that are not fully addressed in the document. And some of these are in the areas of occupational hazards. **(CH-D/7)**

Comment: Section 4.3.10.1, page 4-37 – the hazard of flames and fires should be addressed in the section on physical hazards. **(CL-09/25)**

Response: *Section 4.3.10 was extensively revised. The hazard of flames and fires are addressed in Section 4.3.10.3.*

Comment: Section 4.3.10.1, page 4-39 – the following items should be added to the list of activities that expose workers to chemical hazards:

"Removal of chemical containing systems, such as demineralizers, and acid and caustic containing tanks," "Removal of sodium and NaK residues." **(CL-09/26)**

Response: *Section 4.3.10.1 was extensively revised. The chemical hazards identified above are addressed in Section 4.3.10.3.*

Comment: Tables E-3 and E-5 The issue of occupational hazards applies to activities in addition to those indicated in Table E-3. Since Table E-5 is based on Table E-3, it also needs to be revised to reflect the following.

Such additional activities that can affect or involve occupational issues are as follows. A brief explanation of why follows each item.

Adjust site training (Industrial safety type training needs to be continued and revised based on job hazards to ensure workers are trained for activities or areas [e.g., confined spaces] involved in decommissioning)

Establish a reactor coolant system vent pathway (Depending on specific method, this could involve cutting, welding and working at heights)

Establish containment vent pathway (Depending on specific method, this could involve cutting, welding and working at heights)

Do preventive and corrective maintenance on SSCs (Maintenance activities at an operating plant or decommissioning plant can involve industrial hazards, some more so than others. There can be energized systems, pressurized fluids, rotating equipment, etc.)

Chemical decontamination (Occupational hazards include chemicals and pressurized fluids)

High pressure water sprays of surface (High pressure sprays are themselves a hazard due to energy involved. Precautions need to be taken to use them safely)

Cut out radioactive piping (Cutting typically involves torches or cutting wheels, creation of fumes or particles, and rigging)

Remove large and small tanks or other radioactive components from the facility (Careful rigging is needed to maintain control and prevent injury. If this activity also involves cutting the equipment free, the hazards of cutting are also involved)

LLW packaging and storage (Handling the LLW and packages needs to be performed ergonomically safe to prevent injuries)

Large component transportation (The transportation issues all involve lifting of materials to remove them or bring them onto the site. Care also is needed if vehicle is backing up during the evolution.)

LLW transportation

Equipment into site transportation

Backfill tracked into site

Non-radioactive waste transportation

Complete final radiation survey (The survey will involve working at heights if buildings remain, and possibly accessing hard to reach locations.) **(CL-09/33)**

Comment: Tables H-1 and H-2 – as addressed under comments on Tables E-3 and E-5, other activities involve occupational hazards. Occupational issues do not seem to belong as an environment issue category. Safety of workers is considered as a separate category when planning work. From a regulatory perspective, OSHA and state agencies typically promulgate regulation on worker safety, not the EPA or state environmental agencies. The environmental issues typically are impacts to the air, water, or land both on and off site, while other environmental issues that impact people are evaluated for the public. The type of review is also different for occupational issues than other environmental issues. As each work package is planned, the hazards of the job need to be addressed in the planning and appropriate methods, engineering controls and protective equipment planned and workers briefed for each activity. This is an immediate, short-term (for the duration of the activity) type of review, while most environmental issues have longer term implications. However, if occupational issues are to be included in this environmental review, the additional activities discussed earlier also need to be included. **(CL-09/48)**

Response: *Tables E-3, E-5, H-1 and H-2 were revised as appropriate in response to the above comments.*

Comment: (4.3.10.1) ENVIRONMENTAL IMPACTS of DECOMMISSIONING PERMANENTLY SHUTDOWN NUCLEAR POWER REACTORS; Occupational Issues - Conclusions:

Labor relations is an essential component, and potential impediment to prompt decommissioning activities. For example:

On August 12, 1982, William Pennsyl, a cleanup worker, was fired for insisting he be allowed to wear a respirator while undressing men who entered highly radioactive areas. Pennsyl filed a complaint with the U.S. Department of Labor. William Pennsyl settled out-of-court two days before an administrative law judge was scheduled to hear his case

On March 22,1983, JM 1-2 senior-safety engineer Richard Parks publicly charged GPU and Bechtel Corporation with deliberately circumventing safety procedures, and harassing him and other workers for reporting safety violations.

On July 31,1990, the NRC announced "that an allegation that a shift supervisor on duty at Three Mile Unit 2 control room, during defueling operations in 1987, had sometimes slept on shift or had been otherwise inattentive to his duties, was true ..."

Also, in February 1991 an operator "inadvertently flooded the vaporizer" and several days later an operator was discovered "apparently sleeping.

Based on the experience at Three Mile Island, the SMALL and MODERATE evaluations need to be upgraded to "LARGE." **(CL-02/54)**

Response: *Consideration of worker safety and health, training, and experience with nuclear facilities was included in looking at occupational health and safety issues in this Supplement. Instances of worker misconduct occur, and the licensee and NRC have been diligent in identifying such instances and will continue to do so in the future. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: I noticed that the Draft blabbers on about OSHA standards YET FAILS TO MENTION THAT OSHA DOES NOT COME ON SITE AND IS NOT ALLOWED TO ACCORDING TO OSHA, EVERYTHING IS UNDER NRC. So let's print the truth shall we? **(CL-20/24)**

Response: *OSHA has jurisdiction for non-radiological safety hazards. NRC inspectors have jurisdiction over radiological safety hazards. OSHA has access to licensed facilities, however, because of NRC inspector presence onsite during decommissioning activities, the NRC has entered into a Memorandum of Understanding with OSHA. NRC inspectors are required to be*

alert for conditions of non-radiological safety hazards. NRC inspectors are also required to follow up on identified non-radiological safety hazards to include reporting requirements to OSHA. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: To what extent will chemical decontaminants be used? **(CL-51/11)**

Response: Chemical decontamination, the use of chemicals to decontaminate structures, systems, and components is conducted and will be conducted at all decommissioning sites to varying degrees. Chemical decontamination of the primary system has been conducted at a number of facilities including Maine Yankee and Big Rock Point. Chemical decontamination of the primary system is a determination that is made by the licensee. When available, data on chemical decontaminants were factored into the evaluation of environmental impacts from decommissioning activities presented in this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

O.1.9 Cost Impacts

Comment: Table 4-3 lists the decommissioning cost of Peach Bottom Unit 1 to be 54 million dollars (in January 2001 dollars). In our letter submitted on March 30, 2001, in accordance with 10 CFR 50.75 the decommissioning cost estimate for Peach Bottom Unit 1 reported in beginning of year 2001 dollars is 65.4 million dollars. Table 4-3 should be changed to reflect the latest cost estimate. **(CL-31/12)**

Comment: Table 4-4 lists the decommissioning cost of the high-temperature gas-cooled reactor in SAFSTOR (Peach Bottom Unit 1) to be 54 million dollars (in January 2001 dollars). In our letter submitted on March 30, 2001, in accordance with 10 CFR 50.75 the decommissioning cost estimate for Peach Bottom, Unit 1 reported in beginning of year 2001 dollars is 65.4 million dollars. Table 4-4 should be changed to reflect the latest cost estimate. **(CL-31/13)**

Response: *The revised decommissioning cost estimate for Peach Bottom Unit 1 was included in Tables 4-3 and 4-4.*

Comment: No, I think my main issue is just, you know, having the costs on the table and having the costs be understood, and I think there's got to be some explicit discussion of those sorts of economic issues, and it seems like they're not really out there. **(AT-C/6)**

Response: *This Supplement does not discuss cost-estimation techniques or the economic factors, which may or may not enter into those estimates. The regulations (10 CFR 50.82) require periodic submittals to the NRC on estimates associated with decommissioning. 10 CFR 50.75 requires biannual submittal of the status of the licensee's decommissioning trust fund. Guidance for the cost estimates is found in Draft Regulatory Guide, "Standard Format and Content of Decommissioning Cost Estimates for Nuclear Power Reactors" (temporarily identified as DG-1085) and Draft NUREG 1713, "Standard Review Plan for Decommissioning Cost Estimates for Nuclear Power Reactors." The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: For example, the specific formula for the decommissioning cost. Not that we don't have to have plant's decommissioning fund and have to look to the adequacy because the regulations do require that and we do that. But the formula doesn't apply to non-light water reactors. **(CH-D/6)**

Response: *The decommissioning funding requirements for plants involving other than light water reactor designs (Fermi I and Peach Bottom 1) currently undergoing decommissioning were evaluated on a site-specific basis. All of the United States commercial nuclear power plants currently operating use light water reactor designs and the formulas in 10 CFR 50.75 apply. It is anticipated that most future plants will be light water reactor designs, so the formulas will apply to these reactors also; if other than light water reactors are licensed to operate, then the decommissioning funding requirements will be established on a site-specific basis or the regulations revised to include other reactor designs. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: An Associated Press news article from December 5, 2001, "Japanese power company begins dismantling country's oldest nuclear reactor," highlighted the enormous financial and technical concerns that Japan is facing regarding decommissioning. "Japan Atomic Power Co., which took the Tokaimura plant off line in 1998, won't begin taking apart the reactor for another 10 years because extremely high levels of radiation remain inside, said spokesman Eichi Miyatani. It will completely dismantle the plant by 2017 and spend an estimated 92.7 billion yen (US$748 million), Miyatani said." These monetary figures exceed those that were mentioned as average decommissioning cost estimates at the NRC's public meeting in Atlanta. **(CL-08/11)**

Response: *Decommissioning and environmental requirements differ significantly in the United States from elsewhere in the world. Additionally, economic (societal, design, etc.) and other factors (labor, inflation, etc.) vary from country to country, and, thus make decommissioning*

costs incomparable. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: On Pg. 3-19 the discussion of the SAFESTOR option assumes that there is a savings associated with less Solid RW disposal costs. However, they do not consider that the current NRC guidance for release of material includes a no detectable criteria. In order for the reduction of Solid RW to be achieved, significant quantities of plant materials would need to be released from the site. The current regulations do not support this assumption. **(CL-31/7)**

Response: *Discussion of cost estimates for the Supplement did consider current regulations for release of materials from a decommissioned plant. The assumption made in the GEIS for developing cost estimates did assume the no detectable criterion for release of solid waste. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The cost of decommissioning nuclear facilities can vary according to the size of the facility and the degree of contamination. **(CL-48/21)**

Response: *The variables of size, location, operating history, and others are considered when evaluating the cost impacts. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: A lot of my work has been based on concern about the cost of these facilities relative to the amount of electricity or other benefits they provide on a life cycle basis, and that seems to be something that's a subtext of this statement. **(AT-C/4)**

Response: *The societal benefits, or the lack of benefits, from plant operations is outside the bounds of the Supplement. This comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: In addition to the economic gash in the GEIS portal, this fatally flawed document does not adequately address, acknowledge, account for, or compute a number of significant barriers related to radiological decommissioning; including: Cost Estimates for Radiological Decommissioning; **(CL-02/3)**

Response: *Decommissioning costs are discussed in Section 4.3.11. Two other documents that address decommissioning costs are or were available for public comment. One is a draft guide, "Standard Format and Content of Decommissioning Cost Estimates for Nuclear Power Reactors," temporarily identified as DG-1085. This guide is being developed to assist licensees*

in determining financial assurance and for preparing the various cost estimates required for different stages and methods of decommissioning nuclear power reactors. A related document, Draft NUREG-1713, "Standard Review Plan for Decommissioning Cost Estimates for Nuclear Power Reactors," is also available. The NRC staff plans to use Draft NUREG-1713 in their review of licensees' cost estimates for decommissioning that are submitted to the NRC. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: [In addition to the economic gash in the GEIS portal, this fatally flawed document does not adequately address, acknowledge, account for, or compute a number of significant barriers related to radiological decommissioning; including:]Rate payer Equity. **(CL-02/7)**

Comment: We are tired of being unknowingly treated as an entity from whom the industry can escape the obligation of full disclosure, and "used" as the entity upon whom the industry dumps the real long-term costs, and as the entity who absorbs the costs. **(CL-44/16)**

Comment: Public Citizen is opposed to any policy that would shift the financial burden of decommissioning to ratepayers. The cost of properly decommissioning (including thorough decontamination) a reactor site can vary widely, depending on the size of the facility, the amount of time in which it was operational, and the degree of contamination. As the NRC itself stated in the Supplement, the lack of adequate decommissioning funds can potentially result in delays and/or unsafe and improper decommissioning. Further, with utility deregulation and the attendant shuffling of corporate ownership, much uncertainty has developed regarding the ability of the owning and operating utilities to pay for proper decommissioning of their facilities. Public Citizen insists that site-specific reviews are necessary so that the public has an opportunity to ensure that the utility will be able to pay for the entire, thorough decommissioning process. **(CL-47/17)**

Comment: Georgians for Clean Energy requests that all decommissioning costs be borne by the parent company of the licensee in perpetuity. The parent company should not be allowed to recoup the cost of decommissioning from the ratepayer or federal government through the taxpayer. Ratepayers and taxpayers in Georgia have already had to pay far beyond their share of promised cheap nuclear power that has brought one of the largest rate hikes in the history of Georgia. Furthermore, private landowners, whether residential or commercial, farms, federal, state, county, city, community properties or others should not be responsible for the costs of monitoring, containment or cleanup. **(AT-A/29)**

Comment: THE COSTS MUST NOT BE PASSED ON TO THE RATE PAYERS **(CL-20/47)**

Comment: I think going back 25-30 years, the notion was well, we're going to build these things, we're going to run them and then we're going to cover them up in concrete and post guards around them and they'll be safe. Well, now we have rubblization. Suddenly entombment was the floor, now it's become the ceiling, we won't see it because it's too expensive. Money moves too fast and, you know, how can we do it cheap, how can we do it quick. And of course, our concern is, you know, it may be quick and cheap for the licensee, but for people in the immediate area, people downstream, people on the Savannah River, on the Altamaha River, my concern is that they not be unduly saddled with costs that should be taken into account and that those local concerns be maintained in this process. **(AT-C/2)**

Comment: The most troubling aspect of this section is the assertion that, "The cost of decommissioning results in impacts on the price of electricity paid by rate payers." Due to deregulation, additional decommissioning recovery is either limited or "under-funding" is the sole responsibility of the "electric utility," e.g., Three Mile Island Unit-1. The "hostage rate payer" is being replaced by the shareholder who is not likely to advocate paying for the "under-collected" portion of the fund after the plant is permanently shut down. This section needs to be redrafted and include the following variables: Cost Estimates for Radiological Decommissioning (20); Planned Operating Life of Nuclear Generating Stations; Spent Fuel Isolation; Low-level Radioactive Waste Isolation; Rate Payer Equity; Plant Valuation; Joint Ownership; and Regulatory Ambiguity. **(CL-02/57)**

Response: *The missions of the NRC include the protection of public health and safety, and protection of the environment. NRC requirements established a framework to ensure that decommissioning of all nuclear reactor facilities will be accomplished in a safe and timely manner, and that funding will be available for this purpose. NRC regulations regarding the methods used to ensure that funds will be available to cover the decommissioning process are in 10 CFR 50.75. NRC does not prescribe how the funds are to be raised. The license holder for the facility funds decommissioning costs. Equitability of investment decisions is outside of the regulatory authority of the NRC and thus is not within the scope of this Supplement. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: Power reactor licensees continue to rely heavily on nuclear decommissioning projections provided by the industry consultant, Thomas LaGuardia and TLG, Inc. Furthermore, TLG continues to base decommissioning estimates on flawed and specious "Yield" studies extrapolated from small, minimally contaminated, and prematurely shutdown nuclear reactors. No reasonable, sound or prudent financial officer operating outside of the nuclear industry would accept funding formulas and that rely on so many fluid caveats and assumptions.

The wild fluctuation in the cost estimates for radiological decommissioning are attributable to the lack of actual decommissioning experience at large nuclear generating stations (over 1,000 MWe), or at plants that have operated for their full and planned lifespan. The largest commercial nuclear power plant to be fully decommissioned, Shippingport, is a 72 megawatt (MWe) light-water breeder reactor and is substantially smaller than the Susquehanna Steam Electric Station-1 & 2 (1,050 Net MWe for each unit).

Several other nuclear reactors are being prepared for decommissioning but provide little meaningful decommissioning experience that could be used reliably to predict decommissioning costs.

TLG's are specious and depend on: 1) The development of nonexistent technologies; 2) Anticipated projected cost of radioactive disposal; and, 3) The assumption that costs for decommissioning small and short lived reactors can be accurately extrapolated to apply to large commercial reactors operating for forty years.

The industry "leader", Exelon, has filed comments attesting to the imprecise and speculative nature of radiological decommissioning estimates. **(CL-02/17)**

Comment: TLG provided nuclear waste storage and nuclear decommissioning costs estimates for all Pennsylvania utilities regulated by the Public Utility Commission. However, TLG's testimony during the 1995 PP&L Base Rate Proceeding discredits their projections. Mr. LaGuardia based his cost estimates for low-level radioactive waste (LLW) disposal on the assumption that the Appalachian Compact would be available when the SSES closes. He concluded that the disposal of LLW is the most expensive component in the decommissioning formula. Furthermore, Mr. LaGuardia conceded that it may be necessary to recompute cost estimates for disposal because it now appears imminent that Barnwell will open for seven to ten years for all states except North Carolina. However, the Company has not yet taken the step of reconfiguring costs of LLW disposal now that Barnwell has been open since July 5, 1995. **(CL-02/28)**

Response: *Cost estimates are simply estimates. The adequacy or inadequacy of site specific cost estimates is outside the scope of this Supplement. Draft Regulatory Guide DG-1085, "Standard Format and Content of Decommissioning Cost Estimates for Nuclear Power Reactors" and Draft NUREG-1713, "Standard Review Plan for Decommissioning Cost Estimates for Nuclear Power Reactors" contain additional information on cost estimates for decommissioning. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: Experience at large commercial nuclear power plants over 200 MWe has clearly demonstrated that TLG's assumption that nuclear units will operate for 40 years, contradicts existing nuclear reactor experience.

The Company reconfirmed the 40 year assumption in the 1997 Rate Case.

Mr. LaGuardia's and Mr. Jones's acknowledgments are confirmed by empirical data contained in the GEIS. **(CL-02/19)**

Comment: Obviously, there are chronic shortfalls between "targeted" funding levels and actual costs for nuclear decommissioning. The burden of proof rests squarely on the shoulders of power reactor licensees, their partners and the NRC to demonstrate that a 40 year operating life, which they predicate their financial planning upon, is realistic. Furthermore, the nuclear industry has exacerbated this problem by resolutely refusing to put aside adequate funds for non-radiological decontamination and decommissioning. **(CL-02/20)**

Response: *NRC recognizes that each reactor that has been decommissioned or that is now being decommissioned was permanently shut down prior to the end of its expected operating life. Operating life is based on the reactor design life, i.e., on the plant remaining structurally safe for a certain period of time. For financial planning purposes, operating life is a reasonable period of time. Utilities that have decommissioned their reactor plants prematurely have done so because of political, economic, or other unforeseeable factors. Since energy planning decision factors have diverse options, decommissioning funding requirements are linked to operation for the license term. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: Cost projections by "electric utilities" must be revised to necessarily include funding scenarios that anticipate premature closure. **(CL-02/27)**

Response: *The impacts of the cost of decommissioning generally occur over the life of the facility as the decommissioning fund is being collected. Most power generators are diversified and are able to continue to add funds to their decommissioning trust funds as part of their continued business. In the event that a facility shuts down prematurely, the licensee is still required to fully fund the decommissioning. Further, licensees are required to demonstrate throughout the operational period that the finances are available by one of several methods outlined in 10 CFR 50.75. The licensees submit the status of decommissioning funding to the NRC on a biannual basis. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The cost estimates for non-radiological decommissioning (an imprecise term) are not mandated by the NRC. "For PECO Energy Company and ComEd, the costs for 'Greenfield' are included in the cost estimates and in the funding streams established for decommissioning." However, Greenfield, i.e. the original environmental status of nuclear generating station prior to construction of the nuclear power plant, has never been achieved by an operating nuclear generating station. Moreover, this site status is unattainable if a station is placed in delayed-SAFSTOR, DECO, or ENTOMB. **(CL-02/36)**

Comment: Since 1999, Rancho Seco has embarked on an extended DECON process scheduled for completion in 2008 (including license termination). After license termination, SMUD will, depending on its business needs, embark on site restoration currently estimated at ~$45-80 million. This approximate estimate dollar figure was never a part of the decommissioning trust fund. (We assume your number in Table 4-3 includes all the costs of dismantlement, fuel storage and non-radiological site restoration.) **(CL-18/2)**

Response: *Decommissioning activities continue until the licensee requests termination of the license and demonstrates that radioactive materials have been removed to levels that permit termination of the NRC license. Once the NRC determines that the decommissioning is completed, the license is terminated. At that point, the NRC no longer has regulatory authority over the site, and the owner of the site is no longer subject to NRC authority. As a result, activities performed after license termination (to meet other requirements, e.g., additional state requirements, are not subject to NRC authority) and the resulting impacts are outside the scope of this Supplement. Site restoration or the return of the site to greenfield conditions is specifically stated to be out of scope of the Supplement (Section 1.3, Scope). Most power generators are diversified and are able to be flexible in case of a change in plans (such as a change in decommissioning method). The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: All references to Three Mile Island-2 as a "decommissioned reactor" are in error. The plant has not been decommissioned or decontaminated. TMI-2 was placed in Post-Defueling Monitored Storage in December, 1993. **(CL-02/66)**

Response: *Three Mile Island Unit 2 was not considered as one of the decommissioned reactors in the Supplement. Table 1-1 of the Supplement specifically lists activities at facilities that have been permanently shutdown by a major accident as out of scope. References to Three Mile Island will be revised for clarification.*

Comment: The GAO report also highlights several uncertainties relating to the costs of decommissioning: "Varying cleanup standards and proposed new decommissioning methods introduce additional uncertainty about the costs of decommissioning nuclear power plants in the

future. Plants decommissioned in compliance with NRC's requirements may, under certain conditions, also have to meet, at higher cost, more stringent EPA or state standards. New decommissioning methods being considered by NRC, which involve leaving more radioactive waste on-site, could reduce short-term decommissioning costs yet increase costs over the longer term. Moreover, they would raise significant technical and policy issues concerning the disposal of low-level radioactive waste at plant sites instead of in regulated disposal facilities. Adding to cost uncertainty, NRC allows plant owners to wait until 2 years before their license is terminated—relatively late in the decommissioning process—to perform overall radiological assessments to determine whether any residual radiation anywhere at the site will need further cleanup in order to meet NRC's site release standards. Accordingly, GAO is recommending that NRC reconcile its proposed decommissioning methods with existing waste disposal regulations and policies and require licensees to assess their plant sites for contamination earlier in the decommissioning process." **(CL-08/14)**

Response: *The commenter raises a number of issues that will be responded to in the approximately same order as they were asked. Cost estimates are precisely that: estimates. For the facilities that are currently decommissioning the monies available for the radiological decontamination and license termination appear to be sufficient. Once the reactor license is terminated no additional decontamination of the facility or site would be required so additional funds would not be needed (see Table 1-1 and Section 4.3.11.2). The NRC is using dose-based criteria for termination of the license. There was never the expectation that all radiological contamination resulting from operation of the power reactor would be removed from the site. Rather, the cleanup of the site would result in an acceptable dose (0.25 mSv/yr or 25 mrem/yr) to the average member of the critical group, or that group of individuals reasonably expected to receive the highest exposure to residual radioactivity within the assumptions of a particular future site use scenario. This type of site release criteria assumes some residual radioactivity onsite. This residual radioactive contamination is not waste, and therefore the site would not be considered an unregulated disposal facility. Additional requirements placed upon the licensee by State and local jurisdictions are clearly outside the scope of this Supplement. Licensees make measurements of contamination throughout the life of the plant. A systematic survey of contamination for the purposes of decommissioning most properly should be made during decommissioning. At the time of cessation of operations, the licensee knows where the majority of the contamination is located at their site. Towards the end of the decommissioning process a characterization study is performed to focus the remainder of cleanup activities and to assist in the design of the final site survey. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: If the costs of the decision to shutdown are included, then the cost of the immediate alternative, repair and continued operation, ought to be included as well as comparative environmental impact and comparative risk. **(CL-13/7)**

Response: *A licensee's decision to shut down its reactor is outside the scope of this Supplement, as is the cost to repair or refurbish a plant to keep it operating during its initial term or for license renewal. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Section 4.3.11.2 Potential Impacts of Decommissioning Activities on Cost correctly points out that there are many variables in decommissioning that affect cost; among them are the size and type of reactor, the extent of contamination, property taxes and so on. However the GEIS does no more than list these variables without any attempt to assign the weight which any of them contribute. The GEIS correctly points out that only three commercial power reactors have successfully completed decommissioning, but does not say that they can hardly be considered typical of those plants under and entering decommissioning. Fort St. Vrain was a modest sized plant of oddball High Temperature Gas design and decommissioned on a fixed price, loss-leader price by a large manufacturing firm; Shoreham only ran the equivalent of one full power day, and Pathfinder was a 59MWe peanut of a plant. Thus it would be instructive to look at how costs are apportioned among today's more representative plants currently under decommissioning and from this base, knowing which are sensitive to scale and which are sensitive to choice, project final costs. These costs should be broken down and compared in the GEIS. **(CL-13/15)**

Response: *The NRC does not expect that the costs of Fort St. Vrain, Shoreham, and Pathfinder decommissioning represent the costs of typical reactors currently operating. However, the decommissioning costs for Trojan, comparable to a typical operating reactor, falls within the estimated cost range. Table 4-3 provides estimates of cost associated with the decommissioning of facilities that have permanently ceased operations. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The Generic Environmental Impact Statement needs to specify inappropriate uses of decommissioning funds:

A. Using funds for temporary procedures, such as SAFSTOR, is inappropriate.
B. Using funds for the maintenance and monitoring of temporary procedures, such as SAFSTOR, is inappropriate.
C. Transferring funds from PSC/PUC control to licensee control is inappropriate.
D. Using funds for the temporary storage of spent fuel, such as ISFSI or PFS, is inappropriate.
E. Using funds for the settlement of bankruptcy claims is inappropriate.
F. Using funds as collateral is inappropriate.

G. All other uses of funds that do not directly result in the permanent cleanup of contaminated nuclear plant sites, is inappropriate. Since the funds were obtained as an extra fee from ratepayers for the purpose of safely decommissioning nuclear plants, all of the funds need to be used for that purpose. **(CL-14/5)**

Response: *The requirements for use of decommissioning funds are provided in 10 CFR 50.75. The Supplement does not (1) establish or revise regulations, (2) impose requirements, (3) provide relief from requirements or (4) provide guidance on the decommissioning process. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Furthermore, the most expensive estimate should always be assumed for everything as a wise precaution. NRC lists the decommissioning costs in MILLIONS as estimated by the utilities - however, NRC WELL KNOWS THE COSTS ARE IN THE BILLIONS WHEN EVERYTHING FROM SPENT FUEL ON DOWN IS FACTORED IN, AND THAT MUST BE REFLECTED, PLUS THE NRC INSPECTOR GENERALS OFFICE SHOULD GO OVER ALL ESTIMATES MADE BY UTILITIES TO SEE HOW TRUSTWORTHY AND ACCURATE THEY ARE. **(CL-20/48)**

Response: *The NRC staff has reasonable assurance that the radiological decommissioning costs at facilities that have permanently ceased operation will be within the range of predicted amounts as described in 10 CFR 50.75. The NRC staff recognizes that there are additional costs associated with other activities including disposal of high-level waste and local requirements to refurbish a site to greenfield. Those costs are outside the scope of this Supplement, which is concerned with the radiological decontamination of the site. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Paying the full costs for long-term monitoring and isolation of radioactive wastes. Decommissioning should not end up as a new set of public subsidies for nuclear power by allowing the long-term costs (economic, health, resource, etc.) to be denied, ignored or defined away by NRC with no recourse for the local community or state and federal taxpayers that will end up with the costs by default. **(CL-48/9)**

Response: *There are no requirements for further measurement of radiation levels or long-term monitoring for those sites that have been determined to be acceptable for license termination for unrestricted use. For sites that have been determined to be acceptable for license termination under restricted conditions, additional measurements of radiation are only required for sites that have residual radioactivity in excess of 1 mSv/yr (100 mrem/yr), but less than 5 mSv/yr (500 mrem/yr). These measurements are to be made by a responsible government*

entity or independent third party, including a governmental custodian of a site. Long-term monitoring and isolation following the termination of the license is specifically stated to be outside the scope of the Supplement (Table 1-1). The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: NRC AND INDUSTRY FAILURE TO RELIABLY ESTIMATE THE REAL COST OF DECOMMISSIONING AND REASONABLY ASSURE THE AVAILABILITY OF ADEQUATE DECOMMISSIONING FUNDS DOES NOT JUSTIFY OR SUPPORT GENERIC TREATMENT OF ENVIRONMENTAL IMPACT STATEMENTS.

The NRC GEIS does not adequately address the historic inability by the NRC and industry to accurately assess the final and actual costs associated with decommissioning and the associated underestimation of the rate of accrual for funds set-aside by electrical utilities. The final cost for decommissioning remains highly speculative and therefore likely to continue to be significantly underestimated. As NRC has stated in the DGEIS Supplement the unavailability of adequate decommissioning funds potentially can result in delays and /or unsafe and improper decommissioning. Therefore, our organizations contend that site-specific reviews are necessary for public review and disclosure of the availability of adequate decommissioning funds assigned to an adopted decommissioning plan. **(CL-48/18)**

Response: *Insufficient decommissioning funds at time of reactor shutdown generally are not the result of inadequate cost estimates; rather, they are the result of a power generator deciding to prematurely shut down its reactor for economic reasons or other factors generally beyond its control. A premature shutdown may result in insufficient funds having been accumulated at the time of shutdown, thus preventing the licensee from beginning major decommissioning activities. In some instances, funding shortfalls have resulted in decommissioning decisions, such as choosing SAFSTOR instead of DECON as a method of decommissioning. Such decisions are made to ensure that funds can be obtained or can accrue to levels sufficient for proceeding with decommissioning. However, these delays have not resulted in unsafe and improper decommissioning. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: It therefore appears that 300 years of decommissioning experience without a single license termination plan approval does not suggest that NRC is prepared to treat the issue of cost to adequately decommission generically. **(CL-48/20)**

Response: *Three power reactor facilities have had their licenses terminated. In addition the license termination plan for Trojan was approved on February 12, 2001. While the process for decommissioning nuclear power facilities is now well established, the cost of decommissioning*

varies from one nuclear facility to the next. That variability is due to the major factors listed in the Supplement (Section 4.3.11.2). Cost estimates (made at the time of licensing, at 5 years before anticipated shutdown, with the Post-Shutdown Decommissioning Activities Report submittal, at 2 years following shutdown, and at 2 years preceding the anticipated termination of the license) are site-specific and provide a method of re-evaluating the decommissioning costs at various times and stages in each facility's life. The regulations to ensure the availability of decommissioning funds were originally established in 1988, and site-specific decommissioning cost estimates are required by 10 CFR 50.75 and 10 CFR 50.82. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: The Yankee Rowe nuclear power station is a clear example of the inability to accurately assess the final cost of decommissioning. Originally decommissioning estimates ran under $100 million dollars while the current expenditures are estimated to be just under $500 million for the small 170 megawatt pressurized water reactor. The Shoreham nuclear power station can not be relied upon as an accurate gauge for decommissioning costs as it never reached full power operation. **(CL-48/24)**

Comment: The cost is one thing. It was awful, very high cost [Yankee Rowe], up in the millions. I don't remember how much. **(AT-D/1)**

Response: *Cost estimates are highly variable and estimates are precisely that: estimates. As experience increases with decommissioning, improved criteria will be developed to more accurately predict decommissioning costs. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: Regarding economics, the NRC needs to pay attention to decommissioning costs proposed by Georgia nuclear utilities during rate cases and other proceedings so there is not a situation created where much needed monitoring and maintenance is ignored simply because there was no regulatory attention to the real cost of decommissioning. **(AT-A/31)**

Response: *The NRC regulations (10 CFR 50.75) require licensees to establish a decommissioning trust fund for each power reactor. The amount of money required in the fund at the time of permanent cessation of operations is based on formula given in 10 CFR 50.75(c). The funds are specific for the radiological decommissioning of the facility. The staff recognizes that State rate case proceedings may provide a more detailed site specific estimate of decommissioning costs; however based on our experience to date the amount of money required by 10 CFR 50.75(c) is adequate to assure radiological decommissioning of the facility. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*